AN EXAMINATION OF UNRESTRICTED LINE WOMEN OFFICERS' CAREER PATTERNS AND RELATED ISSUES

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THESIS

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by

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June, 1979

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REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) An Examination of Unrestricted Line Women Officers' Career Patterns and Related Issues		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis June, 1979 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Victoria S. Matthews Sylvia S. Almendinger		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		12. REPORT DATE June, 1979 13. NUMBER OF PAGES 229
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office) Naval Postgraduate School Monterey, California 93940		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release, distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Naval Women Officers, Career Development, Unrestricted Line, 1000 Designated Billets, Shore Establishment, Manpower Models, 110X Designated Officers

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

With the increasing participation of women in the Naval Service, it is incumbent upon the Navy to provide meaningful utilization of these women. Women officer career development/career patterns are of significant influence in attracting and retaining high caliber young women in the Naval Service. Of particular interest is the status of women unrestricted line officers (110X), who do not have the opportunity to attain warfare

qualifications. This thesis researches the current situation regarding women URL (110X) career development/patterns, with emphasis on such areas as leadership development, functional areas, Navy requirements and their structure, along with the interaction of these factors. Some predictions concerning career patterns flows, career development viability, and policy implications are also addressed.

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MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
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ABSTRACT

With the increasing participation of women in the Naval Service, it is incumbent upon the Navy to provide meaningful utilization of these women. Women officer career development/career patterns are of significant influence in attracting and retaining high caliber young women in the Naval Service. Of particular interest is the status of women unrestricted line officers (110X), who do not have the opportunity to attain warfare qualifications. This thesis researches the current situation regarding women URL (110X) career development/patterns, with emphasis on such areas as leadership development, functional areas, Navy requirements and their structure, along with the interaction of these factors. Some predictions concerning career pattern flows, career development viability, and policy implications are also addressed.

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During the past decade, the United States Navy, pressured by a declining male manpower pool concomitant with All Volunteer Force quotas, and by changes in the status and role of women, has increased its accession and utilization of women within its organization. Of particular importance is the position of the woman unrestricted line officer (URL) in the Naval officer cadre. Currently, over 1500 women serve on active duty within this unrestricted line community. No longer a quasi-corps, these women officers are now considered an integral portion of the Naval manpower force, to the extent possible given the constraints of Title 10, Article 6015 of the U.S. Code which prohibits use of women in combatant units. In this regard, woman URL officer career patterns are becoming an important factor in attracting and retaining top caliber young women. However, a concern for woman URL officer career development patterns within the mainstream of the Navy is a recent development.

Prior to the 1970's, the status of the woman unrestricted line officer in the Navy was that of a "woman naval officer rather than a line officer." (Coye) Most of the billets which the woman URL officer occupied were administrative in nature. The career patterns and billet assignments of the woman line officer were thus restricted to a small percentage

of the total unrestricted line billets available. Naval personnel policies at that time also reflected this status for the woman line officer and included:

"- separate recruitment and training for women,

- separate detailing,

- separate quasi-chain of command for the administration of women (Women's Representative/Assistant for Women), and

- discriminatory or different policies, such as:

(a) Women had separate laws which applied to them including "women's" promotion boards. Similarly, there were few women in top managerial positions.

(b) Women could not command at sea and could not succeed to command, except in the administration of women.

(c) Women could not go to sea.

(d) Women could not serve in operational aircraft.

(e) Women navy end strength was minimized, as women were not interchangeable with men in shore billets due to career pattern restrictions, partially resulting from the lack of opportunity for seagoing experience.

(f) The careers of women line officers were confined to the nontechnical fields of the unrestricted line officer program, in particular administration and management." (Coye)

With the advent of the 1970's and the commencement of Admiral Elmo Zumwalt's tenure as Chief of Naval Operations, many new and startling personnel policies and organizational changes were initiated, including policies concerning the

increased utilization and development of women within the naval service. Partly as a result of the apparent imminent passage of the Equal Rights Amendment and partly by the realization that the Navy would have difficulty in meeting its All Volunteer Force requirements if it did not fully utilize the talents and skills of its women, NAVOP-116 was promulgated in August, 1972. Among the policies changed and/or initiated by this directive, or implemented later in the 1970's, were the following:

"- suspension of restrictions regarding women succeeding to command ashore and the assignment of women accordingly,

- expansion of assignment of technically qualified women URL officers to restricted line billets,

- availability of various paths of progression to flag rank for women within the technical, managerial spectrum,

- assignment of detailing of women URL officers to the cognizant warfare specialty grade detailer,

- increased opportunity for women URL officers professional growth by:

(a) eliminating the pattern of assigning women exclusively to certain billets, and

(b) assigning qualified women to the full spectrum of challenging billets, including those of briefers, aides, detailers, placement/rating control officers, attaches, service college faculty members, executive assistants,

special assistants to CNO, military assistance advisory group/ missions, etc.

- equlization of selection criteria for naval training by:

(a) opening the midshipman program to women at all Naval ROTC campuses,

(b) consideration of women for selection to joint colleges (National War College/Industrial College of the Armed Forces)." (Zumwalt)

Additional factors included were:

- disestablishment of Women Officers School and integration of women officer candidates into Officer Candidate School,

- opening the midshipman program to women at the Naval Academy,

- opening Aviation Officer Candidate School to women on a limited basis,

- abolishment of Assistant for Women position and elimination of Women's Representative assignments,

- opening of billets at sea on a limited basis (auxiliary and support ships), passed in the FY79 Defense Appropriations Act,

- expansion of the number of women recruited into the Navy; increased recruitment of women into the unrestricted line program due to increased utilization, enhanced assignment capability, and greater interchangeability with male URL officers in shore billets.

Concomitant with the aforementioned changes, reorganization of the unrestricted line officer billet structure was also taking place. In the past, all unrestricted line officer billets, including surface and submarine warfare billets, were assigned an 1100 designator. Both male and female URL officers could occupy these billets although certain billets were considered to require "at sea experience," e.g., force personnel at COMCRUDESLANT. As a result of the billet restructure, billets adjudged to require a surface warfare officer were assigned an 1110 designator. Subsequently, the 1000 designator was established and the 1000 billets were formed from existing 1100 designated billets and from certain 1300 (aviation designated) billets. The 1000 designator billets are defined as requiring any URL officer. The redesignation of warfare specialty billets with the 1000 designation is a continuing effort as the Navy experiences declining retention of warfare qualified members and concurrently increases its accession of and expanded roles for women URL officers.

Since dissolution of traditional career roles, the assignment of the woman line officer has generally been one of using her as a billet "filler" during her years in service rather than placing her within a career "slot" based upon organizational career patterns and manpower planning requirements. Today, the majority of unrestricted line women pursue careers ashore as non-warfare (110X) officers. These non-warfare women officers are initially assigned to

a variety of areas, such as administration, public affairs, security, intelligence, education/training, and computer science. Ideally, under the Operational, Technical, and Managerial System (OTMS),

> "the woman officers pursue a dual track career: one track aimed at developing leadership skills and the other aimed at developing expertise as a subspecialist. Because direct participation in the "Operational" aspect of OTMS, commonly perceived as sea duty, is precluded for most non-warfare officers, 110X women are normally assigned ashore to support rather than operational units where they progress through increasing levels of responsibility and authority, i.e., division officer, department head, executive officer, and commanding officer. Interspersed with these leadership tours are assignments in a sub-specialty field, again to positions of increasing responsibility and authority or impact in policy formulation. In certain subspecialties, such as communications, computer technology, or personnel management, it is possible to pursue both tracks at the same time. In others such as financial management or intelligence, it is often not possible to gain both leadership and subspecialty experience in the same billet as these functions often fall in the staff category." (NAVPERS 15197A)

In contrast, a career in the Navy for a male unrestricted line officer encompasses association with a warfare specialty, i.e., surface, aviation, submarine, special operations, or special warfare. Indeed, OTMS was driven by a requirement to develop technically or managerially qualified URL officers who were first and foremost operators.

Regarding the development of leadership skills, the inherent difference between the URL male and female officers' career patterns becomes apparent. The male URL officer progresses through the various leadership tours on sea duty within one warfare specialty and, often, within one type of

combatant, i.e., fighters, destroyers, SSN. These billets span several functional areas, e.g., engineering, weapons, communications, administration, and operations, and serve the purpose of acquainting the male URL officer with all facets of a command, so that he might eventually assume command at sea. As such, the male URL officer is known as a generalist, in that he is capable of being assigned to a variety of billets designated for his particular warfare specialty.

In comparison, the woman URL officer may also be considered a generalist, but in a very different way. By definition, the only billets which a URL woman officer can occupy are those assigned a 1000 designator. In practice, women are assigned to other than 1000 billets, and in fact, policy guidelines in the Officer Distribution Manual permit this practice on a limited basis. Nonetheless, these 1000 designated billets encompass a variety of functional areas and leadership levels, and are assigned to a variety of warfare specialty-associated units. Thus, a woman URL officer could be assigned to units associated with all the warfare specialties while attaining her various leadership tours, or she could serve all her tours at units serving a single warfare specialty. The woman URL officer could also serve all her tours within a single or several functional areas.

Regarding the subspecialty track, a non-warfare URL woman officer will generally develop one or more subspecialties

during her career. The non-warfare woman's primary subspecialty is likened to the warfare officer's warfare specialty and receives similar emphasis in career development. Such subspecialties for an 110X woman officer include intelligence, communications, international relations, and manpower/personnel management, among others. This professional enhancement is usually acquired through graduate-level education, gained either through service or civilian institutions, and/or by experience. Graduate level education combined with experience in a subspecialty field or billets leads to designation as a proven subspecialist which is considered a significant factor in the career pattern of the 110X officer.

While career development in the aforementioned manner could provide some interesting and challenging billets, there still seems to be a lack of direction for the woman URL officer. The problem is that there is not really a grasp or understanding of the patterns involved, either by the Service or by the women URL officers themselves. Granted, there is currently an 110X woman officer career development path provided in the URL Career Officers Guidebook, which provides the woman URL officer with a very generalized understanding of the timing and types of assignments. However, it does not answer many of the essential questions necessary for a woman URL officer to determine her career progression or for the Navy to determine the best organizational assignment and utilization

policies. Such questions include the following: It is possible for a woman URL officer to progress within one functional area, attaining the required leadership tours and subspecialty expertise necessary to make her competitive with her peers? Which shore billets qualify as providing a specific type of leadership experience, e.g., division officer, department head? Is interaction between several functional areas required in order to achieve an effective career pattern? How many women URL officers could each functional area reasonably develop? How does this impact on increasing women URL officer accession into the Navy and on current billet assignments? What are the 0-6 policy formulation or command billets associated with each functional area? Can the woman develop the expertise to successfully fill these billets? Does this type of career pattern, focusing on development within a functional area, provide a viable career option for the woman URL officer while satisfying service requirements?

These questions, combined with the increased accession of women and the pressure to provide meaningful utilization of women, impose a critical requirement on the Naval Service to accept its responsibility for defining (given the constraints of Article 6015) a role for the woman URL officer --a role providing for a challenging career pattern and simultaneously satisfying Navy requirements. This thesis will investigate the aforementioned questions concerning women URL (110X) officers career development/patterns, in

an effort to determine their current status and to analyze various options, problems, and policy implications for future utilization of 110X shorebased women. Chapter II of this thesis will present the framework used to review the woman 110X officer career development situation, the model adopted, and the model modifications required due to the unique nature of the woman URL officer's position within the Naval establishment. Chapter III will present information concerning data research, examination, classification, and analyses for both the demand (requirements) and supply (personnel) aspects of the problem. Chapter IV will establish the methodology used to integrate the data base developed in Chapter III with the model adopted in Chapter II. This chapter will also present the results and analyses of experiments designed for investigation into the career development issue. Finally, Chapter V will present the conclusions of the thesis research, including major problem areas, strengths and weaknesses, policy implications, and final recommendations regarding the requirements data base, career patterns of 110X women officers, and further research.

II. MODEL DEVELOPMENT

A. INTRODUCTION

In Chapter I, many of the problems associated with 110X women officers' career development were discussed. Generally, these problems focused on the feasibility of shore-based women officers developing managerial/leadership skills similar to her warfare qualified male counterpart, while simultaneously becoming qualified as an expert in one or more specifically defined areas. This broad problem also encompasses several conceptual policy issues that define the role of the 110X shore-based woman officer, especially given the modification of Title 10 Article 6015. Specifically, the role of the 110X woman officer, who does not serve on sea duty, must be examined to determine if she is an appendage to and/or a filler of gaps in the Unrestricted Line Officer rank structure, or if she is considered, through her experience in the Navy's Shore Establishment, to provide an unique source of expertise which would otherwise be lost. Likewise, being an URL officer and therefore, by definition a generalist, should the 110X woman officer be expected to serve in a variety of functions associated with one warfare community, i.e., surface, submarine, or aviation, or can the 110X officer be assumed to be a generalist by serving in one or two functional areas while crossing warfare community lines. Besides these general

conceptual issues, specific problems must also be addressed: Are there adequate numbers of 1000 designated requirements, which provide leadership experience, unique skill development, or both, to provide equitable career development for anticipated numbers of 110X women officers? Is opportunity to attend postgraduate school or junior or senior service college adequate? What policy alternatives are available to make women officers' career development equitable, appealing, or both?

B. PROBLEM DEFINITION

In order to respond to both the theoretical and specific questions posed above, it becomes necessary to define a framework within which one may examine the problem and potential solutions given real world constraints. The framework must exhibit characteristics of flexibility, while maintaining discipline so that the unique aspects of the problems may be taken into consideration without losing the virtue of a logical, methodical means of dissecting the problem. However, prior to developing this framework, it is necessary to provide a more precise definition of the problem and the parameters of the problem. The scope of the problem involves a billet base of approximately 6000 requirements coded with the 1000 designator and occuring in a variety of activities ranging from Communication Stations to Training activities. Whereas the requirements base in a squadron or surface ship permits an individual to fill

a variety of functions such as personnel, first lieutenant, weapons, engineering, and navigator, the 1000 designated requirements in a shore activity rarely encompass this broad range of functions. On the other hand, 1000 designated requirements tend to occur in all types of activities associated with the various warfare specialties, with the exception, for the most part, of operational units. Filling these 1000 designated requirements are approximately 1500 110X women in addition to 110X males and warfare specialists in excess of warfare specialty requirements ashore.

Assuming that the shore-based 110X women officers are an integral part of the URL corps and that the women officers will be considered generalists by virtue of serving in a limited number of functional areas in a wide variety of commands, the problem then becomes one of examining the 1000 designated billet base vis-à-vis the 110X personnel base to determine (1) if the requisite leadership experience can be gained within a given functional area(s), (2) if 110X women officers flowing through this requirements structure can develop managerial experience and functional expertise, and (3) if career goals are attainable, equitable, and retention enhancing.

One method of approaching the problem is to consider the problem as an economic one with the 1000 designated requirements representing the demand aspects of the model and the 110X women officers providing the supply. By considering the problem as a demand/supply type of model,

one may then apply a mathematical discipline. Ideally, the model should permit assessment of the different policy alternatives available to alter the demand or supply, while acknowledging the constraints upon the demand and supply functions.

C. MODELS CONSIDERED

In searching for the optimal mathematical model to use, the prime consideration was to identify a model which would encompass the constraints on the system and which was readily available and easily programmable. In other words, the main emphasis of the thesis was not on model development but rather examination of the model results, policy implications and alternatives. Several mathematical managerial decision-making models were examined: assignment or distribution models, simulation, and goal programming models. While these models offered potential valid approaches to the problem, none of them were readily available. However, one model in particular was readily available, accessible, interactive, and designed to respond to this type of problem. This model was Professor Kneale T. Marshall's "Model to Relate Officer Career Planning to Weapon's Platform Availability." (Marshall)

The Marshall model examines the personnel flows of surface warfare officers vis-à-vis "at sea" requirements to determine the availability of surface warfare officers to satisfy requirements at particular tour positions in a

career path in future years. Additional characteristics of the model include an interactive nature which allows for the testing of changes in ship inventories, manning, tour lengths, and tour positions.

Special characteristics of the model include a demand or requirements sector and a supply or personnel sector. The demand aspect of the model converts ship requirements into billet requirements by multiplying a 6 x 13 matrix, depicting the requirements for the 6 tour positions for each of the 13 ship types, by a 13 x 1 ship requirements vector, which shows the numbers of ships in the inventory by ship type. The supply or inventory aspect of the model converts the present stocks of surface warfare officers into future supplies of personnel by length of service cells. This is accomplished by multiplying a 25 by 25 matrix depicting continuation rates, or the percentage of individuals who continue on active duty from one year to the next, by a 25 x 1 stock vector which shows the current stock of surface warfare officers by years of commissioned service. Added to the resulting stock vector is the annual accession input into the system. To determine the availability of individuals for service in a particular tour position, the model then multiplies a 6 x 25 tour position matrix, depicting the percentage of individuals serving in a particular tour position by years of commissioned service, by the stock vector determined above. The final step in this model compares the numbers of individuals by tour positions with

the requirements by tour positions by determining a ratio of requirements to available personnel. Ratios less than one would indicate an excess of personnel vis-à-vis requirements; likewise, a ratio greater than one indicates a shortage of individuals vis-à-vis requirements. Table 2.1 summarizes the aspect of this model.

D. MODEL ADAPTION

In adapting the Marshall model to the problem of examining the 110X women officers' career pattern, several modifications to the model were required because of the unique aspects of the women's career model. The primary problem of adapting the Marshall model to the question of 110X women's career development was caused by the aforementioned complexities of the 1000 designated requirements base, including the variety of functions coded with the 1000 designator category, the range of shore activities, and the interaction of these factors. The extent to which 1000 designated billets appear in a variety of activities can be gleaned from Table 2.2, which provides a sample of the 721 activities in which the 1000 designated requirements are to be found. Similarly, the range of missions encompassed by these activities can be ascertained from the billet titles. An attempt was made to group the activities into similar types of activities, by means of the first four digits of the activity code, a specific design of the activity code designation system. However, the resulting

Table 2.1

SYNOPSIS OF THE MARSHALL MODEL

ASPECT	MATRIX/VECTOR	DEFINITION	DIMENSIONS	CALCULATION
DEMAND	A	Matrix of the requirements by ship type by tour position	6 x 14	-
	v	Vector of the number of ships by type of ship	14 x 1	-
	r	Ship requirements by tour position	6 x 1	$Av = r$
SUPPLY	C	Matrix of the continuation rates, i.e., % of indivduals remaining on active duty from one year to the next	25 x 25	
	s (t - 1)	Vector of the number of personnel by years of commissioned service in the inventory at year t - 1	25 x 1	-
	g (t)	Vector of the number of accessions at year t	25 x 1	-
	S (t)	Vector of the number of personnel by years of commissioned service in the inventory at time (t)	25 x 1	$S(t) = Cs(t-1) + g(t)$
AVAILABILITY	T	Matrix of the % of individuals by tour by years of commissioned service to serve in a tour position	6 x 25	-

Table 2.1

(Continued)

ASPECT	MATRIX/VECTOR	DEFINITION	DIMENSION	CALCULATIONS
	a	Vector of the number of individuals available for each tour position	6 x 1	$a = T\,s(t)$
	ϕ	Vector of the ratio of requirements to individuals		$\frac{r}{a}$

Table 2.2

SAMPLE LISTING OF ACTIVITIES
HAVING 1000 DESIGNATED BILLETS

ACTIVITY	TOTAL OFFICER BILLETS	#s of 1000 DESIGNATED BILLETS
INSURV Wash., D.C.	27	2
NIPSSA	13	2
Magazine Subic	10	3
Pt. Mugu Test Center	95	3
NAV Observatory	5	2
MSC Headquarters	27	5
Field Suppact DC	4	3
FTC Norva	23	7
COM SOLANTFOR	7	2
NAVALREHCEN JAX	6	2
HISTCEN Wash., D.C.	11	11
MCB 1	21	1
NavSafCen	75	8
DPSCPAC Alameda	4	2
NPPRO Sunnyvale	19	1

list provided an equally unmanageable structure of over 209 activities types, a snapshot of which is provided in Table 2.3.

Further compounding the complexity of the 1000 designated requirements base is the lack of standardization of the individual activity organizational structure and a lack of standardization in application of the 1000 designator cateogy to the requirements. This phenomenun is a result both of deliberate design and happenstance. Two types of activities illustrate this: Communications Activities and Naval Air Stations. Communications activities' billets have been purposely designated to require different types of officers for similar functions, so that an optimal mix of experience and expertise development could be achieved for those Limited Duty, Warrant, and URL officers assigned to communications activities. On the other hand, Naval Air Stations' billet designator assignments are a function of assigned aircraft and the Commanding Officer's desires regarding billet designator coding. The numbers of 1000 designated billets assigned to Naval Air Stations ranges from no 1000 designated billets assigned to NAS Fallon and Guantanamo to 14 billets assigned to NAS Pensacola. Similarly, there is no standard designator assignment for a particular function, such as administrative or personnel officer. The resultant 1000 designated requirements base forces a revision of the demand structure of the Marshall model since

Table 2.3

SAMPLE LISTING OF ACTIVITIES BY TYPE

ACTIVITY TYPES	# OF ACTIVITIES	#s OF 1000 BILLETS
NAVFAC	19	175
AIRMAINT TRA GRU	1	1
NB	7	62
NUCWEAPTRGRU	2	6
TRAWING	6	14
WWMCCSYS	1	2
INTER AMER DEF	2	9
MAAG	3	8
OPNAV	1	158
CRUIT DIST	42	247
SUBBASE	5	5
COMBATRACEN	2	7
ARMCON & DISARM AGY	1	4
NSYD	8	20
LABS	5	9

development of an activity type vector and tour position matrix becomes infeasible. It therefore becomes necessary to develop a modified demand structure for the model.

Whereas the Marshall model examines one requirements structure vis-à-vis one personnel structure, the modified model has to account for a requirements structure that can be filled by a number of personnel inventories. Additionally, where the Marshall model dealt with a highly structured requirements model, the modified model must deal with an unstructured requirements base. The imbalance between the 1000 designated requirements and the 110X women personnel structure was dealt with by developing a methodology whereby the requirements base was reduced not only to reflect this relationship but also to permit an examination in the growth of the reduced requirements which could very possibly occur if the other URL communities filling the 1000 designated billets experience retention shortfalls.

In order to cope with the unstructured 1000 designated billet base, it was deemed necessary to examine the requirements on two levels, macro and micro. The macro structure was designed to depict all of the 1000 designated structure spaces, categorized according to a similarity of functions. Within the modified model a series of 6 x 7 matrices, depicting requirements according to grade in the rows and leaderhip categories in the columns, were developed. The matrices were designed to depict actual requirements by

grade and management categories as opposed to calculating requirements by tour position (the r vector in the Marshall model).

As a consequence of the modification of the requirements base, a modification of the personnel aspects of the Marshall model was also necessary, although these modifications were minor. Regarding the stock vector, the dimensions were the same as that of the Marshall model. In the modified model, it was necessary to develop stock vectors for each of the micro requirements structures in addition to the macro stock vector. As continuation rates were not expected to differ according to the functional requirements and since data were not available to determine micro structure continuation rates, one continuation matrix, of the same dimensions as the C Matrix in the Marshall model, was used. One set of availability rates was also used for the macro and micro structures. However, this matrix, 6 x 25, depicted grade in the rows and length of service in columns rather than tour positions in the rows as in the comparable T Matrix of the Marshall model. Finally, the modified model depicts a ratio of personnel to requirements vice requirements to personnel as depicted in the Marshall model.

Actual programming and development of the model was accomplished with the assistance of LCDR Cavaiola, a thesis advisor and member of the faculty of the Department of Operations Research, Naval Postgraduate School. The model is on line, interactive, and permits growth in the

requirements structure and changes in the accession data for both the macro and micro aspects of the structure. A synopsis of the modified model appears in Table 2.4

In summary, this chapter has attempted to define the role of the 110X woman officer, explore the complexity of the 1000 designated billet base, and develop a framework by which personnel inventories could be examined in relationship to requirements over time. Chapter III will explore the issues of functional area and leadership/management experience category definition and the problems inherent in the manipulation of billet and personnel data.

Table 2.4

SYNOPSIS OF THE MODIFIED MODEL

ASPECT	MATRIX/VECTOR	DEFINITION	DIMENSIONS	CALCULATION
DEMAND	D	Macro Matrix of the 1000 Designated billets, by grade and leadership experience	6 x 7	-
	D*	Micro Matrices of 1000 Designated, functionally related, billets, by grade and leadership experience	6 x 7	-
	d	Vector representing the sum of the rows (grades) of the D Matrix	6 x 1	d = Σ Rows of D
	d*	Vector representing the sum of the rows (grades) of the D* Matrix		d*= Σ Rows of D*
SUPPLY	C	Matrix of the continuation rates of 110X personnel, i.e., % of individuals remaining on active duty from one year to the next	25 x 25	
	s (t - 1)	Vector of all 110X women officers by length of service at year t - 1	1 x 25	
	s*(t - 1)	Vector of 110X women officers serving in a particular functional field at year t - 1	1 x 25	

Table 2.4

(Continued)

ASPECT	MATRIX/VECTOR	DEFINITION	DIMENSIONS	CALCULATION
	g (t)	Number of accessions for the macro structure at year t	1 x 25	
	g*(t)	Number of accessions for the micro structures at year t	1 x 25	
	s (t)	Number of personnel, in the macro structure inventory by years of service at time (t)	25 x 1	$s = C\ s(t-1)^{-1} + g(t)^{-1}$
	s*(t)	Number of personnel in the micro structures' inventories by years of service at time (t)	25 x 1	$s^* = C\ s^*(t-1)^{-1} + g^*(t)^{-1}$
AVAILABILITY	N	Matrix of the % of 110X women officers available by grade and by years of commissioned service to serve in a structure billet	6 x 25	-
	b	Vector of 110X personnel available to fill the 1000 designated requirements by grade	6 x 1	$b = N\ s(t)$
	b*	Vector of 110X personnel by functional grouping to fill the 1000 designated functionally grouped requirements by grade	6 x 1	$b^* = N\ s^*\ (t)$

Table 2.4

(Continued)

ASPECT	MATRIX/VECTOR	DEFINITION	DIMENSIONS	CALCULATION
	r	Vector of the ratio of 110X personnel to 1000 designated requirements	6 x 1	$r = \frac{b}{d}$
	r^*	Vector of the ratio of 110X personnel by functional grouping to 1000 designated requirements by functional grouping	6 x 1	$r^* = \frac{b^*}{d^*}$

III. DATA ANALYSIS

A. INTRODUCTION

The purpose of this chapter is to describe the data base used in analyzing the billet (demand) and personnel (supply) aspects of the model, the methods used in the data analysis, the assumptions made, and the problems encountered while analyzing the data. As previously indicated, the complexity of the shore billet structure has a significant impact not only on the model, which was chosen to examine the non-warfare qualified URL officer, but also on the method by which the billets were analyzed. Other issues, such as a lack of standardization among like shore units, the diversity of the support structure, the duplication of functions resulting from layering of staffs, the difficulty in comparing functions at the operating level with functions at the command and control level, and the difficulty in determining managerial experience also impact on the ability to actually analyze the billet and personnel data. Another aspect of the analysis was the difficulty in eliminating the analysts' personal differences and prejudices. Each individual considers a certain billet with her own set of perceptions, which are functions of general knowledge of the Navy, length of service, knowledge of the promotion system, education, social awareness, and

so on. Therefore, the problem of establishing a framework of ground rules by which to examine the billets and personnel while maintaining a degree of consistency becomes paramount. In this chapter, care will be taken to thoroughly address the ground rules applied, and the problems encountered, in analyzing the data. Finally, this chapter will examine sequentially the demand, or billet side of the model, and the supply, or personnel side of the model.

B. DEMAND OR BILLET STRUCTURE

The data base, used in the demand structure, included all ENS through CAPT billets coded with the 1000 designator, excluding TAR billets (Functional Area Code T), authorized for FY79 and programmed in the June 30, 1978 Manpower Management Information System (MAPMIS) B-Tape. Additionally, the billet data base incorporated changes resulting from the 1978 URL Study (CNO Memo 104D/122 CIX/#29-79) and from those billets approved for command for URL women which were coded with other than a 1000 designator, e.g., NROTC units (BUPERS Memo Pers 401d:SBC:jio Ser 1204). The data base, used in examination of the 1000 designated billets, included all Navy officer billets, thus permitting the analyst to examine the 1000 coded billets in relation to the total officer and enlisted activity structure. Unfortunately, a total activity structure is not captured in the MAPMIS data base, in the sense that relationships between Navy

civilians, other U.S. military, and NATO military with Naval officers and enlisted in an activity could be considered in order to more accurately assess the management functions of the Navy billets.

This study was deliberately designed to examine only the 1000 designated billets and thus the failure to consider other URL billets did not result from a lack of realization that 110X designated women officers fill other than 1000 designated billets. In fact, policy, as stated in the Officer Distribution Manual, permits, on an exception basis, the assignment of an officer to any billet for which the officer is otherwise qualified even though the designator of the billet may require another type of officer. Additionally, personal experience and analysis of the personnel records verified the employment of women in billets coded with designators for warfare specialists, Restricted Line officers, and Limited Duty and Warrant officers. However, by definition, the only billet an 110X officer is qualified to fill is a 1000 designated billet, which permits the assignment of any Unrestricted Line officer. Given that personnel planning must be based on what is expected, rather than what might occasionally occur, it must be assumed that surface warfare officers will fill, first, surface warfare officer billets, aviation warfare officers will fill aviation warfare officer billets, etc., as the personnel in these categories are by definition the only qualified individuals available to fill the specific category of

billets in question. Excess inventories of warfare qualified individuals at specific tour position indicators are available to fill, first, the 1050 designator category billet structure, which requires any warfare qualified officer (approximately 1960 billets) and, second, the 1000 designated billet structure (approximately 6360 billets) (CNO Ser 122E/694665). Since current 110X women's end strength is approximately 1500 officers, it becomes apparent that it is infeasible from a planner's viewpoint to consider the total URL billet base or even the combined 1000/1050 billet structure as the demand structure from which to assess the 110X women's career patterns.

Working within the constraint of considering only the 1000 designated billets requires a certain amount of discipline and an ironclad steadfastness of purpose, as an analysis of the total Navy's shore billet structure reveals discrepancies and inadequacies in the billet assignment procedure which are difficult to ignore. By resolving to ignore these discrepancies, a data base, which can be commonly agreed upon and is, therefore, not open to general criticism or debate, can be used. Additionally, relying on the existing 1000 designated billet structure permits focusing on the issue of identifying career patterns available to 110X women rather than being sidetracked on the issue of "rightness" of the billets which non-warfare qualified individuals may fill. This discussion, however, should not be seen as a tacit approval of the current coding

of shore billets, but rather as an acceptance of this billet structure as a basis from which to construct the model.

In addition to the modified MAPMIS data base listing of the FY79 authorized officer billet structure, officer and enlisted manpower authorizations as captured on microfiche as of July 30, 1978, were also consulted. This resource, albeit difficult to read, proved invaluable as these microfiched Manpower Authorizations (MPAs) contained organizational information which was not readily apparent in summaries of authorized billet data. The microfiched MPAs often include departmental or divisional breakouts as separate line items, while current information on authorized billets captures information only on the individual billet. Unless the billet title includes a managerial title or there exists a significant gap in billet sequence codes for an activity, it is difficult to determine managerial functions without the assistance of microfiche. Additionally, microfiched records supplied the subspecialty information used in the analysis of the billet structure. An additional problem, requiring strict attention to timing, exists for any billet structure analyst using both paper copy and microfiche in that the cutoff dates of both documents must be timed such that the same data base appears in both sources. In this particular study, discrepancies in cutoff dates existed between the source materials. The paper copy was used when a conflict with microfiche records existed as

this data was more readily accessible. Finally, caution should be exercised in attempting to relate the figures used in this study with other Navy figures, such as the 1000 designated billet end strengths contained in any of the Officer Requirements Plans, as the latter figures reflect fiscal decisions or arithmetic adjustments required to produce a balanced authorizations plan (CNO Ser 122E/694665).

1. Billet Coding

While problems regarding the coding of the data base have generally been alluded to in preceding sections, this section shall attempt to delineate the working assumptions of the study, general and specific problems encountered in coding the billets, and the means by which these problems were resolved.

The primary problem involved identification of managerial experience associated with billets, when that experience was not specifically annotated or not commonly known, in the same manner in which weapons and operations officers on ships or squadrons are "known" to be department head billets. The problem of identifying this managerial experience has been acknowledged by the establishment of the CAX, Department, and CBX, Division, Additional Qualification Designation Codes (AQD) for the 1000 billets (NAVPERS 15839C) and in a 1972 Pers A sponsored study which proposed different alternatives to revamp the Naval Officer Billet

Classification (NOBC) structure on a functional/command-management basis. (Pugh) Unfortunately, the former AQD structure has not been implemented on either billet or personnel files and the latter unimplemented Pers A study emphasized a more global approach to the NOBC structure than was appropriate for this study. Therefore, a system had to be developed whereby billets, which did not specifically identify a department, division, or branch function, could be identified as such and, concomitantly, the system had to be able to equate functions at various command echelons, e.g., a division officer billet at a Naval Station had to be equated to a division officer billet at a headquarters staff. In order to develop this system, it was necessary to make the fundamental assumption that billets at the activity level could be, somehow, equated to billets at the highest echelon command level, without access to organizational charts.

Pursuing this problem led to an examination of Navy Regulations, the Bureau of Navy Personnel Manual, and the Standard Organization and Regulations Manual (SORM) in order to form a foundation upon which to define management functions. While the previously referenced instructions extensively address shipboard and squadron organizations, there is little or no mention of the shore establishment. In fact, an assumption was made that while specific duties may differ between shipboard and shore establishment functions, the basic leadership/management functions are

equatable. Therefore, definitions of Commanding Officer, Executive Officer, Department Head, Division Officer, and Branch Officer functions, as contained in Navy Regulations and the SORM, became the working definitions used in this study, which are displayed in Table 3.1. Definitions of equivalent positions were considered necessary in order to cope with the exigencies of the shore establishment and were determined from personal experience and information included in the Navy Unrestricted Line Officer Career Guidebook, NAVPERS 15197A, and Navy Regulations. The remaining function defined in Table 3.1, staff officer, was based on material contained in a general text (Litterer).

Given these working definitions, the problem remained as to how to consistently apply these definitions in analyzing billet functions, how to use the definitions in a practical manner so that managerial functions could be identified without access to formal billet descriptions, and how to use the definitions in order to equate functions at various activities in various command echelons with one another. One problem in coding billets with the various managerial experience codes was to resolve conflicts between the various managerial codes for certain billets: for example, a comptroller fulfills a dual function of providing advice to a Commanding Officer and serving as a department head. Similarily, a problem arises as how to view positions at headquarters activities. In one sense, the whole activity could be viewed as providing advice to

Table 3.1

DEFINITIONS OF MANAGEMENT FUNCTIONS

Command Officer (CO)

The officer having absolute responsibility for his command unless otherwise proscribed. The authority of the CO is commensurate with responsibility and may be internally delegated. Responsibilities include accountability for economy of command; operational readiness; adequacy of resources (manpower, financial, material); safety and well-being of personnel assigned; mission accomplishment. Additionally, the CO must through personal example effect overall leadership within the command.

Executive Officer (XO)

The XO is the direct representative of the CO. As such, the XO has the primary responsibility under the CO for the organization's performance of duty, and the good order and discipline of the command. In performing these duties, the XO coordinates and activates the policies, directives, and orders of the CO.

Department Head

The representative of the CO in matters pertaining to the Department, as such, reports to the CO regarding operational readiness of the department, including the general condition of both material and personnel. May have one or more divisions assigned.

Division Officer

Responsible to the Department Head for the personnel and readiness of the division. As such, directs the operation of the division, conducts training, initiates evaluations, maintains division notebook, supervises work centers, etc. May supervise two or more sections or branches within the division.

Branch Officer

Functions similar to those of the division officer; usually is a smaller work unit. In this context, the Branch Officer reports to the Division Officer.

Staff

Assists, advises, counsels line executives; has no direct authority over any positions of the organization, except immediate subordinate staff. Accomplishment of these functions is through personal assistance to an executive or through assistance to the total organization. May coordinate and control, acquire and maintain resources, counsel and service, serve as an agent of organizational adaptation. Positions may include Flag Lieutenant, Executive Assistant, aides, certain special analysts.

Equvalent CO

The officer having absolute responsibility for his activity, unless otherwise proscribed; authority is commensurate with responsibility and may be internally delegated. Responsibilities include accountability for economy of activity; operational readiness, if applicable; fiscal accountability; adequacy of resources of command (manpower, financial, material); safety and well being of personnel assigned; mission accomplishment. Equivalent CO positions include OINC, Project Manager, Commanders, Directors, CO (Enlisted Component).

Equvalent XO

The XO is the direct representative of the aforementioned commanding officer. As such, the XO has primary responsibility, under the senior officer, for the organization's performance of duty, and the good order and discipline of the command. In performing these duties, the XO coordinates and activates the directives, policies, and orders of the senior officer. Equivalent XO positions include Chief of Staff, Assistant OINC, Assistant or Deputy Director, and Deputy Commander.

Equivalent Department Head

The representative of the senior officer in matters pertaining to that department, or division when two or more divisions are assigned to that Division head. As such, the Department Head reports to the senior officer regarding

mission accomplishment, including the general condition of both material and personnel. May have two or more divisions assigned. Equivalent Department Head positions include Chief Staff Officer, Division Director on a Headquarters Staff, when two or more divisions are assigned, Director of a component activity.

Equivalent Division Officer

Responsible to the Department Head for the personnel and readiness of the division. As such, the Division Officer directs the operation of the division, conducts training, initiates evaluations, maintains division notebook, supervises work centers, etc. May supervise two or more sections or branches. Equivalent Division Officer positions include Assistant Department Heads, Division Directors Headquarters Staff, not included above, Branch Officers on a Headquarters Staff, if appropriate.

the Commander of that activity; in another sense, requirements often encompass managing resources of the activity and/or resources of the Navy. Compounding this duality of roles is the lack of information regarding civilians and other armed forces' positions within the agency or activity. In order to resolve these problems, as far as possible, certain ground rules were established: if a billet appeared to encompass both staff and managerial functions, the managerial functions were deemed to take precedence; in the aforementioned comptroller example, the comptroller was classified as a department head; if two or more like activities (e.g., Naval Stations) had similar billet structures and one activity displayed organizational information while the other did not, the organizational data concerning the former activity was assumed to apply to the similar unstructured activity(s). Overall, coding billets with the management experience rested on an individual assessment of the billets, which was based on knowledge of various activities and consistent application of the definitions.

The second major problem involved the development of like or natural functional groupings of billets. As the concept of grouping billets into functional areas, paralleling warfare specialities, has been previously addressed, this discussion will focus on the establishment of the actual functional groupings, the logic of these groupings, problems associated with the aggregates, and problems of actually coding the billets. In developing the

functional fields, the first area of research included identification of any current formal systems providing this type of information. Two systems currently provide a means of functionally categorizing billets. The first system consists of the subspecialty codes, conceptualized under OTMS. Under this system, certain functional fields have been identified as requiring extraordinary expertise which may be obtained by virtue of education, experience, or a combination of both factors. Provisions of this program permit coding of billets to indicate that experience in the billet serves to train the individual as a subspecialist. However, except for the Human Resources Management and Public Affairs Programs, these provisions have not been pursued. The lack of specifying training billets combined with the fact that all the 1000 designated billets do not merit coverage by the subspecialty system results in suboptimal functional groupings for the purpose of this study. On the other hand, the subspecialty system exhibits one very positive characteristic not evident in the other formal system, which is the careful application and review of subspecialty coded billets, particularly the billets requiring graduate education, by both the subspecialty sponsor and the OP-01 arbitrator. Despite this fact, the lack of application to the total 1000 designated billet structure, the resultant necessity to code, in some arbitrary fashion, the non-subspecialty coded billets, and the complexity of dovetailing the varying subspecialty categories

with management/leadership experience codes, causes the subspecialty structure to be an infeasible alternative to pursue.

From a practical viewpoint, the Naval Officer Billet Classification (NOBC) structure, the alternate formalized structure, provides a feasible solution to the problem of creating logical aggregates of functions, although there are certain limitations inherent in this system. The NOBC defines the functions associated with a specific billet type, such as Commanding Officer, shore activity, or administrative officer, and classifies individual NOBCs in terms of ten (10) functional fields: Health Care Services, Supply and Fiscal, Sciences and Services, Facilities Engineering, Electronics Engineering, Weapons Engineering, Naval Engineering, Aviation, and Naval Operations. Table 3.2, extracted from NAVPERS 15839C, presents the categorical assignments of NOBCs to these ten fields. A major advantage of this system, besides the formalized structuring of individual NOBCs, is the strictly enforced policy that each billet be assigned a NOBC (OPNAVINST 1000.16D). Therefore, the main disadvantage of the subspecialty system, i.e., a lack of comprehensive coverage of the 1000 designated billets, is not present for the NOBC system. However, the NOBC categorization also exhibits certain disadvantages. Primarily, assignment of NOBCs to individual billets is relatively unconstrained. In fact, formalized procedures or controls relative to the NOBC structure are

Table 3.2

NAVY OFFICER BILLET CLASSIFICATIONS CODE STRUCTURE

FIELDS

0000-0999 HEALTH CARE SERVICES	1000-1999 SUPPLY AND FISCAL	2000-2999 SCIENCES AND SERVICES	3000-3999 PERSONNEL	4000-4999 FACILITIES ENGINEERING	5000-5999 ELECTRONICS ENGINEERING	6000-6999 WEAPONS ENGINEERING	7000-7999 NAVAL ENGINEERING	8000-8999 AVIATION	9000-9999 NAVAL OPERATIONS
0000-0099 GENERAL MEDICINE	1000-1099 FISCAL	2000-2099 PHYSICAL AND NATURAL SCIENCES	3000-3099 RECRUITMENT AND SELECTION	4000-4099	5000-5099	6000-6099 AMMUNITION AND EXPLOSIVES	7000-7099 ELECTRICAL	8000-8099 AV. ENG. (DESIGN AND ACCEPTANCE)	9000-9099 STAFF AND FLEET COMMAND
0100-0199 MEDICAL SPECIALTIES (MEDICINE)	1100-1199 SUBSISTENCE AND FOOD SERVICE	2100-2199 NAVAL SCIENCE	3100-3199 CLASSIFICATION AND DISTRIBUTION	4100-4199	5100-5199	6100-6199	7100-7199 HULL	8100-8199 AV. ENG. (MAINTENANCE AND REWORK)	9100-9199
0200-0299 MEDICAL SPECIALTIES (SURGERY)	1200-1299 TRANSPORTATION	2200-2299 SOCIAL SCIENCES	3200-3299 GENERAL TRAINING	4200-4299 SHORE FACILITIES ENGINEERING	5200-5299	6200-6299 GUIDED MISSILES	7200-7299 MACHINERY	8200-8299	9200-9299 SHIPBOARD OPERATIONS AND WEAPONS
0300-0399 GENERAL DENTAL	1300-1399 MATERIAL DISTRIBUTION	2300-2399 OCEANOGRAPHY/ HYDROGRAPHY	3300-3399 HUMAN RESOURCE MANAGEMENT	4300-4399 NAVAL CONSTRUCTION FORCES	5300-5399	6300-6399 WEAPONS EQUIPMENT	7300-7399 MATERIAL	8300-8399	9300-9399 ENGINEERING OPERATIONS
0400-0499	1400-1499 PROCUREMENT	2400-2499 PUBLIC AFFAIRS	3400-3499 PERFORMANCE	4400-4499	5400-5499	6400-6499 WEAPONS CONTROL	7400-7499 PRODUCTION ENGINEERING	8400-8499	9400-9499 SHORE OPERATIONS
0500-0599 DENTAL SPECIALTIES	1500-1599 INVENTORY CONTROL	2500-2599 LEGAL	3500-3599 WELFARE	4500-4599	5500-5599	6500-6599 UNDERSEA WEAPONS	7500-7599	8500-8599 FLIGHT	9500-9599 COMMUNICATIONS
0600-0699	1600-1699	2600-2699 MANAGEMENT AND ADMIN. SERVICES	3600-3699	4600-4699	5600-5699	6600-6699	7600-7699	8600-8699 GROUND OPERATIONS	9600-9699 INTELLIGENCE
0700-0799	1700-1799	2700-2799 SECURITY AND POLICE	3700-3799 CHAPLAIN	4700-4799 NUCLEAR SHORE SYSTEMS	5700-5799 TRAINING DEVICES	6700-6799 WEAPONS MATERIAL AND PROGRAMS	7700-7799	8700-8799 METEOROLOGY	9700-9799 AUTOMATIC DATA PROCESSING
0800-0899 MEDICAL SERVICE	1800-1899	2800-2899 GRAPHIC ARTS	3800-3899	4800-4899	5800-5899	6800-6899	7800-7899	8800-8899 PHOTOGRAPHY	9800-9899 CRYPTOLOGY
0900-0999 NURSING	1900-1999 GENERAL	2900-2999	3900-3999 GENERAL	4900-4999	5900-5999 GENERAL	6900-6999 GENERAL	7900-7999 GENERAL	8900-8999 GENERAL	9900-9999 GENERAL

limited to the establishment, disestablishment, and review of NOBCs, and certain computerized edits. Therefore, NOBC application to individual billets remains a relatively unfettered process, as NOBCs are usually assigned by individual activities and are, therefore, subject to individual interpretations of the functions and applicability of the various NOBCs to the individual billets.

In order to be able to use the NOBCs as a basis for examining the functional areas covered by the 1000 designated billet structure, it was necessary to determine the distribution of 1000 billets throughout the ten fields. A review of a summary of NOBC assignments to the ten fields, exhibited in Table 3.2, revealed that no health care and a limited number of supply and fiscal, aviation, and engineering NOBCs were assigned to the 1000 designated billets. Additionally, certain fields such as personnel and naval operations included large numbers of 1000 designated billets, approximately 1600 and 2000 billets, respectively. Therefore, it was deemed necessary to subdive certain fields and aggregate others, by creating functional areas of approximately the same size with logical relationships between the NOBCs. Table 3.3 summarizes the results of this aggregation. Management Administration, General Personnel, Training, Staff and Fleet Command, Shore Operations, Automated Data Processing, Communications, and Naval Operations, (general) were considered to be relatively unlike functions of such a magnitude as to warrant independent inspection.

Table 3.3

FUNCTIONAL AREA SUMMARY

SUPPLY AND FISCAL		SERVICES		MANAGEMENT ADMINISTRATION		PERSONNEL MANAGEMENT	
Code	NOBC's	Code	NOBC's	Code	NOBC's	Code	NOBC's
10	1000-1099	24	2400-2499	26	2600-2699	30	3000-3099
11	1100-1199	25	2500-2599			31	3100-3199
12	1200-1299	27	2700-2799			34	3400-3499
14	1400-1499						
19	1900-1999						
Total Billets: 128		Total Billets: 210		Total Billets: 444		Total Billets: 401	
GENERAL PERSONNEL		HUMAN RESOURCES MANAGEMENT		TRAINING		SCIENCES	
Code	NOBC's	Code	NOBC's	Code	NOBC's	Code	NOBC's
39	3900-3999	33	3300-3399	32	3200-3299	20	2000-2099
		35	3500-3599			21	2100-2199
						22	2200-2299
						23	2300-2399
Total Billets: 397		Total Billets: 341		Total Billets: 789		Total Billets: 131	

ENGINEERING

Code	NOBC's
42	4200-4299
43	4300-4399
57	5700-5799
59	5900-5999
60	6000-6099
64	6400-6499
65	6500-6599

ENGINEERING (Cont.)

Code	NOBC's
67	6700-6799
69	6900-6999
71	7100-7199
72	7200-7299
73	7300-7399
74	7400-7499
79	7900-7999

ENGINEERING (Cont.)

Code	NOBC's
80	8000-8099
81	8100-8199

Total Billets: 271

STAFF AND FLEET COMMAND

Code	NOBC's
90	9000-9099

Total Billets: 468

SHORE OPERATIONS

Code	NOBC's
94	9400-9499

Total Billets: 305

COMMUNICATIONS

Code	NOBC's
95	9500-9599

Total Billets: 365

INTELLIGENCE AND CRYPTOLOGY

Code	NOBC's
96	9600-9699
98	9800-9899

Total Billets: 228

AUTOMATED DATA PROCESSING

Code	NOBC's
97	9700-9799

Total Billets: 356

NAVAL OPERATIONS GENERAL

Code	NOBC's
85	8500-8599
86	8600-8699
87	8700-8799
88	8800-8899
92	9200-9299
93	9300-9399

NAVAL OPERATIONS GENERAL (Cont.)

Code	NOBC's
99	9900-9999

Total Billets: 256

OTHER

- TPS&D (Transients, Patients, Separations, and Detainees)
- Students

Total Billets: 1403

Supply and Fiscal includes all NOBCs in that field and, although relatively small in numbers, did not appear to logically belong to one of the other functional areas. In a similar manner, NOBCs were assigned to the Sciences and Services functional areas. The Personnel functional field was subdivided into four areas: Personnel Management, i.e., recruiting, classification, and performance; Training; Human Resources Management, i.e., human resources and welfare; and General Personnel. The Training functional area proved to be much larger than the other functional areas and further subdivision was considered. However, it was determined that additional subcategorization of the training functional area would be meaningless. NOBCs assigned to Engineering Functional Area included the facilities, electronics, weapons, and naval engineering functional fields plus two aviation engineering NOBC categories. The Intelligence/Cryptology functional area included all NOBCs assigned to these categories, as the functions appeared to be related. Finally, NOBCs assigned to the Naval Operation, General functional area included those miscellaneous categories not previously classified, which were related to naval operations. Approximately 74% of the billets assigned to this category were coded with the 99XX (general) NOBC.

Actual coding of the billets involved an individual billet review, determining the appropriate managerial code, and applying the NOBC code. While actually coding the billets, two additional problems requiring resolution became

apparent. The first problem involved the assignment of CO, XO, OinC, and assistant OinC billets to the shore operations functional area. In accordance with CNO policy, the NOBC "9421," Commanding Officer-Shore Activity, is assigned to CO billets within the shore establishment regardless of the type of activity. Thus, CO billets for a Weapons Station, Naval Station, Human Resources Management Center, and Naval Facility, were all coded with the "9421" NOBC. It, therefore became necessary to recode these CO, XO, and OinC billets to indicate the appropriate functional area. This was accomplished through examination of the apparent mission of the activity, the subspecialty code and secondary NOBC of the subject billet, and, if necessary, NOBCs of the other billets in the activity. The second problem, which was relatively uncontrollable, involved differences between NOBCs and functions as stated in the billet title (e.g., billet title stated ADMIN, NOBC indicated personnel). It thus became necessary to assume that NOBC assignments were accurate, and that individual differences in applying NOBCs were not significant for the purposes of this study.

The results of the coding of the billets are included in Appendices A and B. Appendix A depicts examples of billets assigned to the various functional areas and to the various management experience categories. Appendix B provides the aggregated results of coding the 1000 designated billet structure. Sixteen matrices, each six by seven, are used to display the results. Rows include billet grades

and columns depict billet managerial experience. Appendix B-1 is the summation of the individual functional area matrices. For the ease of display and in order to assist analysis, the equivalent positions have not been individually broken out; however, CO and XO equivalent requirement figures are annotated in footnotes for each functional area matrix.

2. Functional Area Analysis

In this section, the results of the billet coding, presented by the matrices in Appendix B, will be analyzed. Particular attention will be paid to analyzing the billet structure(s) in terms of implied problem areas for women officer career patterns and implied problem areas for the Navy in developing adequately skilled officers to fill these shore establishment requirements. Additionally, policy alternatives, relative to the billet base, will be assessed. Administratively, the analysis will focus on the aggregate matrix, Appendix B-1, first, and then the individual functional area matrices, Appendices B-2 through B-16. One particular fact which must be kept in mind throughout the analysis is that the 1000 designated billet structure requirements above lieutenant junior grade may be filled by any qualified URL officer. In fact, there are some 3549 1000 designated billets in excess of the numbers of 110X women officers available to fill these billets. Additionally, the following analysis does not consider the effect of time in grade on the availability of billets

relative to personnel. The data analysis shall focus on the entire structure, exclusive of student and TPS&D (transients, patients, separations, and detainees) requirements. In subsequent chapters, analysis of women's career patterns shall take into consideration the difference in the number of women available to fill the 1000 designated billets and the total numbers of 1000 designated billets, and the effect of time in grade.

In analyzing Appendix B-1, several potential problem areas become apparent. The first problem is the convoluted billet structure, resembling a diamond rather than the traditional pyramid structure, generally associated with military billet structures. Indeed, if one examines Appendix B-1, it can be determined that 19.1% of the billet structure (the 01 and 02 billets), or the base of the "pyramid," supports 28.6% (the 05 and 06 billets) of the billet structure. Factors contributing to this convoluted structure are a result of the interaction of force reductions (when activity end strengths are cut, the least important functions are eliminated first), billet assignment policies, and officer career development patterns (warfare officers are generally assigned at sea until they reach the 03 grade), thus causing the billet structure to expand at the lieutenant, and lieutenant-commander grade levels relative to the base. The second overall problem in terms of developing managerial experience for the 110X woman officer, is that 41% of the total requirements

evidence no leadership characteristics. Similarly, inspection of the ensign and lieutenant junior grade billet structure reveals that only 266 billets, or 30% of the requirements in these grades, exhibit division or branch head characteristics. Additionally, an examination of CO billets relative to XO billets, i.e., 372 billets as compared to 272 billets, suggests that a certain number of the CO billets will be filled by warfare specialists. If one assumes that an individual, prior to serving in a CO billet, must have served in an XO billet at the next lower grade level, then it is possible to analyze the diagonals in Appendix B-1. For example, the 143 CO billets in the 06 grade category, or the northwest corner element, are supported by 130 XO billets in the 05 grade; 87 CDR COs by 76 LCDR XOs, and 80 LCDR COs by 27 LT XOs. Given the assumption that XO assignment must proceed CO assignment and that an 05 CO position is a necessary career hallmark, it thus becomes necessary to examine policy issues, such as the requirement to serve in an XO billet at a lower grade prior to serving in a CO billet, the necessity that a CO equivalent position be filled by an individual with XO experience, or the importance of filling an 05 CO position. However, the full discussion of policy alternatives will be postponed until later chapters. Subsequent discussion in this section will focus on examination of the individual functional area matrices.

Matrix B-2 depicts requirements in the Supply-Fiscal functional area, which represents 2.5% of the total structure. The shape of this matrix resembles a kite, with 54.7% of the total requirements occuring at the 04-05 grade levels and with an unequal distribution of the remaining billets throughout the structure, e.g., 39 CDR billets support 22 CAPT billets, 21 LTJG billets support 11 LT billets, and so on. Indeed, only 28% of the total structure is represented by requirements in the 01 and 03 grades. Similar to Matrix B-1, 32% of the requirements in this matrix evidence no leadership characteristics. However, a positive element is that 78% of the 01 through 03 requirements are leadership positions. Finally, there are no CO/XO opportunities in this structure.

Matrix B-3 depicts requirements in the Services functional area, representing 4.1% of the total structure. Although only 6.1% of the total requirements are ensigns, this structure presents a certain degree of order with 58% of the requirements falling in the 01 through 03 grades. On the other hand, 25.7% of the total requirements provide no leadership roles and only 15.8% of the 01/02 billets provide division officer experience. Even including the department head requirements at these grade levels, only 28.9% of these billets provide leadership/managerial experience. Finally, there are only nine CO/XO positions available in this functional area.

Matrix B-4 depicts requirements in the Management/ Administration functional area, representing 8.7% of the total structure. This structure is slightly top heavy with 06 and 05 requirements equaling 18.2% of the structure as compared to 15.8% of the structure represented by the 01 and 02 requirements. The 04 and 03 requirements represent 66% of the structure. Regarding leadership, 87.4% of the structure provides some type of management experience. However, there are certain problems with the leadership structure. There are more CO billets than XO billets and more department head requirements than division officer and branch head requirements. Additionally, division officer and branch head requirements are only 38.6% of the ensign and lieutenant junior grade structure. In examining the CO/XO diagonals, it was determined that 14 CAPT CO billets are supported by 16 CDR XO billets, 5 CDR CO billets by 4 LCDR XO billets, and 4 LT CO billets by 1 LTJG XO billet.

Matrix B-5 depicts requirements in the Personnel Management functional area, representing 7.9% of the total structure. This structure also exhibits top heavy characteristics with 24.7% of the requirements attributable to the 05/06 grades as compared to 10% for the 01/02 grades. Approximately 21.4% of the billets lack management experience characteristics with only 47.5% of the ensign/lieutenant junior grade billets providing either division or branch leadership experience. Serious problems exist with the CO/XO relationship as 86 CO billets are supported by only

46 XO billets. Excluding the CO/XO equivalent positions, examination of the CO/XO diagonals reveals the following: 16 CAPT CO requirements are supported by 2 CDR XO requirements, 35 CDR CO billets are supported by 42 LCDR XO billets, and the LCDR and LT CO billets are unsupported by any XO billets.

Matrix B-6 depicts requirements in the General Personnel functional area, approximately 7.8% of the total structure. This billet structure is also convoluted with 04 requirements being greater than 03 requirements which, in turn, are 3.4 times larger than the summation of the 02 and 02 requirements. Of the total positions, 34.5% and 35% of the ensign and lieutenant junior grade billets, respectively, lack management development. As far as CO/XO opportunity is concerned, only 1.8% of the structure provides command experience, if equivalent positions are included. Command opportunity is halved if CO equivalent positions are excluded.

Matrix B-7 depicts requirements in the Human Resources Management functional area, representing 6.7% of the total structure. Structurally, Matrix B-7 represents a more normal military-type structure with 05 and 06 requirements equaling 18.7% of the total structure, as compared to 27.6% of the structure represented by the 01 and 02 billets. Over 41.9% of the structure failed to exhibit any management characteristics. Only 20.2% of the 01 and 02 billets are division officer or division or division

officer equivalent positions; another 30.9% of requirements in these grades were coded as department head billets. CO/XO opportunity is constrained, especially if CO billets relative to the CO billets, i.e., 11 CAPT CO positions are supported by only 10 CDR XO positions.

Matrix B-8 depicts requirements in the Training functional area, representing 15.5% of the total structure, the largest single category. The billet structure in this functional area appears to begin at the 03 grade rather than the 01 grade. Of considerable concern is the fact that 60.1% of the billets in this category have no management experience characteristics. In fact, only 12.2% of the ensigns and lieutenant junior grade requirements are division or branch officer functions. Similarly, there are only 25 LCDR department head positions available to support 50 CDR XO requirements. Analysis of the CO/XO diagonals reveal similar types of problems: 50 CDR XO billets support 52 CAPT CO billets; 4 LCDR XO billets support 6 CDR CO billets; 1 LT XO billet supports 1 LCDR CO equivalent position.

Matrix B-9 depicts requirements in the Sciences functional area, representing only 2.6% of the total structure. This structure is particularly convoluted with the 06 and 05 positions representing 45.6% of the structure as compared to the 01 and 02 billets, comprising only 7.1% of the structure. Similarly, there are 37 LCDR billets as compared to 47 CDR billets. Regarding leadership

characteristics, more than 50% of the total structure lacks leadership experience. In fact, only one-seventh of the 01 and 02 requirements were coded as division officer billets. Finally, examination of the CO/XO diagonals (excluding CO/XO equivalent billets) reveals that 6 CAPT CO requirements are supported by 2 CDR XO positions.

Matrix B-10 depicts requirements in the Engineering functional area, which represents 5.3% of the total structure. While there are virtually no ensign requirements, 39.9% of the engineering structure is represented by the 01 and 02 billets. On the other hand, over 73.4% of the billets exhibit no leadership characteristics. Both the large percentages of 01 and 02 billets and billets without leadership experience probably reflect the nuclear engineering instructors' recruiting program. However, the CO/XO diagonals present some problems: 5 CAPT CO positions are supported by 4 CDR XO positions; 4 CDR CO positions are supported by 4 LCDR XO positions; and the LCDR and LT CO positions are not supported by any XO positions.

Matrix B-11 depicts requirements in the Staff and Fleet Command functional area, 9.2% of the total structure. Not surprisingly, the pivotal point of this structure is at the 05 grade level, which has the greatest number of billets. Comparing 01 and 02 billets with 06 and 05 requirements reveals the former's contribution to the billet structure to be approximately 2.6% while the latter's contribution is 56.4%. The inclusion of a number of

planning, operations, and analytical billets without leadership characteristics is reflected in the 45.3% of billets coded as providing no leadership. Similarly, the junior billets fail to provide leadership experience. Finally, CO/XO positions in this functional area are extremely limited and cover only 8.3% of the staff and fleet command requirements.

Matrix B-12 depicts the Shore Operations functional area, representing 6% of the total structure. This structure more nearly resembles the traditional pyramid shape, as 01 and 02 requirements are 38% of the structure contrasted to 11.8% of the structure represented by 05 and 06 requirements. Leadership qualifying billets predominate this structure with 78% of the structure exhibiting some type of managerial role. Likewise, 70.7% of the 01 and 02 billets have been coded as providing managerial functions. Examination of the CO/XO diagonals, excluding equivalent positions, reveals the following: 8 CDR XO billets support 3 CAPT CO billets; 4 LCDR XO positions support 3 CDR CO positions; 17 LT XO billets support 19 LCDR CO billets; and 2 LT CO billets remain unsupported by XO positions. A final noteworthy problem is the lack of division officer positions relative to both department and branch head functions.

Matrix B-13 depicts requirements in the Communications functional area, or 7.2% of the total structure. The pivotal grade in this structure appears to be LCDR which

encompasses 31% of the communications structure. CDR and CAPT billets represent 25.8% of the structure, while 01 and 02 billets represent 23% of the structure. However, the relatively large numbers of billets (32.6%) without leadership experience is an area of concern. Some 42.9% of the ensign/lieutenant junior grade structure lacks leadership experience. An inversion of CO/XO billets is also apparent: 12 CAPT CO billets are supported by 8 CDR XO billets, 7 CDR CO billets are supported by 7 LCDR XO billets, and 2 LCDR CO billets are not supported by any XO requirements.

Matrix B-14 depicts the Intelligence/Cryptology functional area, or 4.5% of the total structure. The inverted structure of this functional area (45.6% of the structure is represented by 05 and 05 billets while only 6.1% of the structure is represented by 01 and 02 billets) may be reflective of restricted line billet assignment policy and URL subspecialty development. Likewise, 44.7% of the structure has been assigned some type of subspecialty code. The intimate relationship between URL intelligence subspecialties and the intelligence restricted line community may also be reflected in the lack of both leadership and 01/02 billets. In fact, the major leadership diagonal, CAPT CO-CDR XO-LCDR Department Head-LT Division Officer, suggests that progression through this functional area, in terms of leadership development, is extremely limited. Only 8 CO positions and 5 XO billets are available in this functional area.

Matrix B-15 depicts requirements in the Automated Data Processing (ADF) functional area, which represents 7% of the total structure. Structurally, the 06 and 05 grades represent 20.5% of the ADP requirements, as compared to 12.1% of the structure represented by the 01 and 02 billets. Leadership billets in this category are extremely few and a logical progression to CO/XO positions is not available, as can be seen through an examination of the CAPT CO main diagonal (excluding CO and XO equivalent positions): 8 CAPT CO billets are supported by 5 CDR XO billets, which in turn are supported by 17 LCDR Department Head billets, supported by 6 LT Division Officer billets. The availability of Division Officer-Branch Head experience at the 01/02 grades is practically non-existent.

The final functional area appears in Matrix B-16, Naval Operations-General; which represents 5% of the total structure. This structure is particularly convoluted with 49.2% of the requirements occuring at the 05 and 06 grades. Staff functions compose 36.3% of the billets, while CO/XO billets are only 5.9% of the total structure. Department head billets are practically non-existent. Leadership progression would appear to be limited to rotating through various jobs at the 06 level, rather than via the more traditional method, i.e., division officer and department head experience in the junior grades, XO/CO in the field grades.

In the foregoing analysis, certain aspects of the billet structure having a potentially negative impact on women's career patterns have been addressed. However, policy alternatives to eliminate these negative aspects have remained unmentioned. While the majority of the policy alternatives will be examined in Chapter V of this thesis, which examines the merger of the demand and supply aspects of the model, three policy alternatives relative to the demand or billet base will be analyzed here. The first alternative is to downgrade the billet structure, particularly billets in the 04 and 03 grade levels. This alternative has been pursued with a modicum of success by OP 01, but faces major obstacles with the lack of standardized criteria by which to assess the appropriateness of billet grade assignment. The second alternative, civilian substitution for military billets, has been addressed in papers for DOD and is included as a policy option in OPNAVINST 1000.16D. Under this alternative, military and civilian billets at an activity would be examined in relation to one another and to the activity as a whole; those military billets at the 03 and 04 grade levels appropriate for civilianization would be civilianized. Simultaneously, civilian billets at the GS 7 and 9 grade levels with leadership characteristics appropriate for military substitution would be militarized. The total effect of the alternatives would be to alter the billet structure so as to provide more billets, perhaps, with leadership characteristics for the

junior women officers while providing more middle management billets for civilians.

C. SUPPLY OR PERSONNEL ANALYSIS

In analyzing the personnel aspects of the model, it was necessary to examine the current usage of 110X women officers and to interpret the personnel data according to the requirements of the supply aspects of the model. Thus, data coding addressed in this section of the chapter shall differ from the data coding and analysis in the requirements-related sections of this chapter. Specifically, the personnel analysis sections will analyze the methodology and problems inherent in coding the data in terms of the employment of women in the various functional areas, the distribution of 110X designated women by years of commissioned service and functional area, i.e., the stock vectors, the continuation of women from one year of service to another, and the availability of 110X women, by years of commissioned service and grade, to serve in a structure billet. Additionally, as a by-product of the personnel data coding, various women's career path possibilities will be depicted. Finally, interpretation of the results of the personnel data coding will focus on the functional area utilization, stock vectors, continuation rates, and assignment availability.

1. Personnel Data Base

The data base used in analyzing the supply structure included all 110X women on active duty as reflected in an April 8, 1979 MAPMIS personnel data base run. Data items queried included year group, rank, subspecialty codes, current and past billet assignments, tour length, current billet sequence code and NOBC assignment, year entered postgraduate school (Navy funded), and junior and senior service colleges. An assumption was made that the information in the data base was accurate, therefore no corrective factors were applied to this data base. The type of errors possible include time lags in reflecting current and actual assignments and current and actual status, such as on active duty or separated, selected for promotion or promoted. Past estimates of time delays in the MAPMIS Data Base have ranged from two to six months; however, an accurate assessment of the applicable time lag was not available for the purposes of this study. Finally, since only half of year group 79 had been assessed at the time of the study, it was necessary to simulate not only the employment of the remaining half of the year group, but also the numbers of individuals assessed into year group 79. This simulation was accomplished by assuming a level of 350 assessions, less those officers assigned to auxiliary units, or approximately 300 officers. To determine functional area employment, percentages depicting the current employment of women

officers by functional area, as contained in Table 3.4, were applied to the total year group.

Before addressing the actual coding of the personnel data, it is necessary to discuss one other noteworthy underlying assumption. The current status of women, as of the data base date, was assumed to be representative of past and current utilization of women. Therefore, no attempt was made to assess past utilization, promotion, or continuation rates. As the model begins with current utilization, the impact on the stock vectors may not be significant. On the other hand, using current utilization rates as a method to reduce the demand model may impact on the prediction of steady state or future utilization of 110X women officers.

2. Personnel Data Coding

Personnel were assigned to functional areas and leadership/management experience categories on the basis of their current employment. Current employment was determined by examining the current duty assignment and billet sequence code in which the individual was serving and comparing the individual assignment with the code assigned to that billet as explained in section B1 of this chapter. As several individuals were assigned to other than 1000 designated billets, it was necessary to assume that the billet to which they were assigned was equivalent to a 1000 billet. Therefore, the individual was coded according

Table 3.4

FUNCTIONAL AREA DISTRIBUTION OF SECOND HALF FY79 ACCESSIONS

Functional Area	FY79 Distribution	Additional FY79 Billets
Supply and Fiscal	1.2	2
Services	6.8	12
Management/Administration	11.6	21
Personnel Management	6.1	11
General Personnel	10.8	19
Human Resources Management	7.1	13
Training	12.2	22
Sciences	1.6	3
Engineering	2.2	4
Staff and Fleet Command	2.3	4
Shore Operations	10.8	19
Communications	7.8	14
Intelligence and Cryptology	5.4	10
Automated Data Processing	8.2	15
Naval Operations-General	1.7	3

to the NOBC functional area and the apparent managerial/ leadership experience code. Individuals assigned to a command in excess were coded as having no leadership experience and as serving in a functional area depicting the main mission of the command. (The methodology used in this instance was similar to that used in coding CO, XO, and OinC billets, described in section 3B1). Additionally, if more than one individual was assigned to a particular billet sequence code, for which only one billet was authorized, no leadership credit was given to the individuals assigned in excess of the authorized requirements. The results of the personnel coding appears in Appendix C, which depicts current employment of 110X women officers in terms of management/leadership experience and functional areas. Analysis of this employment shall be deferred to in a later section of this chapter.

Distribution of individuals by years of commissioned service and functional area, depicted in Table 3.5, was derived from the aforementioned functional area analysis and individual year group assignments. One year of commissioned service equated to year group 79, 25 years of commissioned service equated to year group 55. It was assumed that periods of inactive duty or other possible changes to year group did not affect either the employment of women or individual year group assignments. For year group 69 and senior, representing 11 years of commissioned service and greater, personnel were coded as to their actual

Table 3.5

STOCK VECTORS

YCS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Total Personnel	341	247	235	80	154	116	111	50	42	50	37	17	22	10	13	9	6	5	11	9	6	1	7	1	0
Supply and Fiscal	3	2	4	1	2	1	1	1		1									1						
Services	21	17	13	4	10	8	8	3	2	3	3		1			1			1		1		1		
Management/Administration	32	26	24	7	19	16	16	7	6	7	5	2	2	2				1		1		1			
Personnel Management	13	11	9	2	11	10	10	4	4	4		3	4	1	2	1	1		1	1					
General Personnel	32	25	19	4	15	15	14	6	5	6	5	1	5	1	2	1	2		2	2	1		2	1	
Human Resources Management	15	12	13	5	13	12	12	5	4	5	4	1	3	1				1			1		2		
Training	33	27	27	11	19	13	12	6	5	6	4	2	2	2	4			1	4	3	1		1		

Table 3.5

STOCK VECTORS (Cont.)

YCS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Sciences																									
	3	2	4	1	2	1	1	1		1										1					
Engineering																									
	8	8	6	2	2	1	2				1					1									
Staff and Fleet Command																									
	8	7	3	4	3	4	4	2	1	2	1		1			1	1	1	1						
Shore Operations																									
	46	37	35	11	13	6	5	2	2	2	2														
Communications																									
	29	23	23	7	10	6	6	3	2	3	3	1			2	1			1						
Intelligence and Cryptology																									
	13	11	13	6	10	6	6	3	2	3	2	1	1	2		1		1			1				
Automated Data Processing																									
	25	21	21	8	14	10	9	4	4	4	1				1	2	1								
Naval Operations General																									
	7	5	4	1	1	1	1	1		1							1			1			1		

year group and functional area employment. For year group 70 and junior, the following methodology was applied. First, distribution of individuals was determined by grade from Appendix C-1 and the aggregate stock vector in Table 3.5. The percentage distribution of personnel by year group was then computed as follows:

Grade	Year Group	% of Grade
LT	70	10.8
	71	9.0
	72	10.8
	73	23.9
	74	24.9
	75	20.6
LTJG	75	26.2
	76	36.2
	77	37.6
ENS	77	21.5
	78	34.7
	79	43.8

The resultant percentages were multiplied by the numbers of personnel in each grade as assigned to each functional area, in order to determine numbers of personnel that should be assigned to each length of service cell for the individual functional areas.

Continuation rates for women officers were defined as the strength in year 2 divided by the strength in year one, strength in year 3 divided by the strength in year 2, etc. As continuation rates measure the likelihood for an individual, who is on active duty in one year to be on active duty in the next year, it was necessary to compare

the end strengths in one fiscal year, by years of commissioned service, with the end strengths in the subsequent fiscal year, by years of commissioned service. As data access was limited, an actual query of the MAPMIS data base was not performed. However, the URL 110X women community strength plan for FY 78 through FY 88 was available. (URL W2265C of 13 February 1978) Therefore, continuation rates, contained in Table 3.6, were derived by dividing projected end strength for individuals with 2 years of commissioned service in FY80 by end strength for individuals with one year of commissioned service in FY79. Likewise, end strength for individuals with 3 years of commissioned service in FY80 was divided by end strength for individuals with 2 years of commissioned service in FY79.

Deriving the availability matrix was a more complex procedure than determining the aforementioned statistics. Availability rates are a measure of the effect of training, rotation and promotion policies on the availability of 110X women officers for assignment while serving in a particular grade. To measure the effect of training and TPS&D on women's availability, an analysis of tour lengths and training was undertaken. To determine average tour lengths, a random sampling of 100 110X women officers for each of the first four tours, 89 officers for the fifth tour, 57 officers for the sixth tour, 35 officers for the seventh, 17 officers for the eighth, and 6 officers for the ninth tour, was conducted. Sample size for the fifth through ninth tours

Table 3.6

CONTINUATION MATRIX

YCS \ YCS	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	.974																								
2		.866																							
3			.825																						
4				.867																					
5					.873																				
6						.911																			
7							.922																		
8								.929																	
9									1.00																
10										.93															
11											.944														
12												1.00													
13													1.00												
14														1.00											
15															1.00										
16																1.00									
17																	1.00								
18																		1.00							
19																			1.00						
20																				.615					
21																					.714				
22																						1.00			
23																							1.00		
24																								1.00	
25																									1.00

reflect the limited number of women who are on active duty and have served up to nine tours. Actual lengths of assignment for individuals within the sample were determined from the MAPMIS data and recorded for each individual. Average tour lengths were ascertained by summing the individual tour lengths and dividing by the total sample size. It was further hypothesized that an ideal 110X woman officer's career would include a tour at postgraduate school and tours in junior and senior service schools. As a result of this analysis, two sample career patterns in terms of tour lengths and postgraduate school and service college attendance, are presented in Table 3.7. (Promotion flow points were taken from the URL Career Guidebook (NAVPERS 15197A).

Determining postgraduate school attendance by length of commissioned service was not only necessary for determining the career paths but also in measuring availability. To determine postgraduate school attendance, a record of all officers who attended Navy funded postgraduate school assembled by year of commissioned service at the beginning of the course of study. An average postgraduate school tour length was assumed to be eighteen months. Therefore, if 14 individuals entered postgraduate school in the third year of commissioned service and seven entered in the fourth year of commissioned service, 14 would be considered to be in postgraduate school in the fourth year of commissioned service (1/2 of the third year entrants and all of the fourth year entrants). Added to individuals

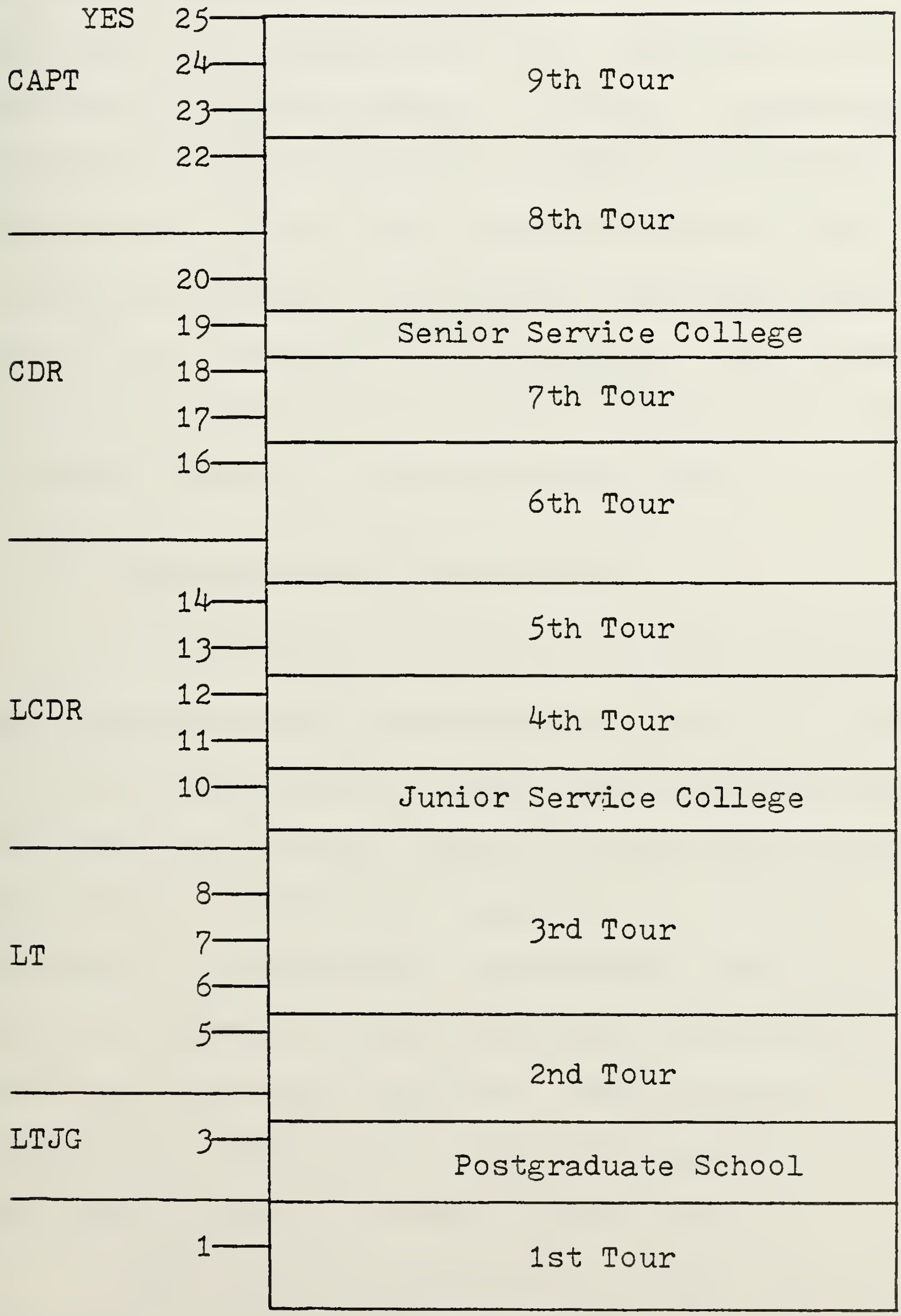
Table 3.7

110X WOMEN OFFICER CAREER PATH (OPTION 1)

YES	25	9th Tour
	24	
CAPT	23	
	22	
	20	8th Tour
	19	Senior Service College
CDR	18	7th Tour
	17	
	16	6th Tour
	14	Junior Service College
	13	5th Tour
LCDR	12	
	11	4th Tour
	10	
		Postgraduate School
	8	3rd Tour
LT	7	
	6	
	5	
LTJG	3	2nd Tour
ENS	1	1st Tour

Table 3.7

110X WOMEN OFFICER CAREER PATH (OPTION 2)



attending postgraduate school, were individuals attending service school and Defense Intelligence School (course durations approximately 12 months). Finally, the average 14% TPS&D figure was applied to each year group. Summing individuals in training and TPS&D categories provided an availability rate by length of service. By multiplying availability rates per year of commissioned service times distribution rates of each length of service cell among the six grade categories, availability rates per length of service cell and grade were determined. The results of these calculations are presented in Table 3.8. Cells with no entries are to be interpreted as zeros.

3. Personnel Data Interpretation

In this section the results of the personnel coding, reported in the previous section, will be analyzed in terms of functional utilization, year group distribution, 110X women continuation rates, and 110X women officer availability. Particular attention will be paid to personnel utilization, distribution, continuation rates, and availability in terms of career development and implied problem areas for 110X women officers. Administratively, the analysis will sequentially focus on Appendices C-1 through C-16, and Tables 3.5 through 3.6 and Table 3.8.

Appendices C-1 through C-16 depict the current employment of women in the aggregate (exclusive of student and transients) and the individual functional areas by grade

Table 3.8

AVAILABILITY MATRIX

GRADE \ YCS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
01	.86	.84	.52																						
02			.29	.7	.3																				
03					.49	.8	.82	.63	.62	.67	.04	.12	.08												
04											.68	.56	.48	.71	.79	.33	.13	0	.16	.21					
05															.06	.41	.65	.86	.7	.42	.87	1.00	.37		
06																							.5	1.00	1.00

and managerial/leadership characteristics. As reflected in Matrix C-1, the personnel structure resembles the traditional military pyramid with the following percent grade distribution: 45.9% Ensign, 14.7% Lieutentant junior grade, 31% Lieutenant, 5% Lieutenant Command, 2.8% Commander, and .6% Captain. The relatively small numbers of LCDRs through CAPTs vis-a-vis the total structure is a matter of some concern, which can be seen in the official policy to promote women Commanders to the rank of Captain at the rate of 75% vice 60% for male URL officers. These small numbers of LCDRs through CAPT also reflect the increased accession policy for women officers pursued in the 1970's. Of greater concern is the fact that 60.3% of the individuals are not serving in billets which provide management experience. Caution must be exercised, however, in the interpretation of these figures. Since these figures reflect the current utilization of women, they should not be interpreted to mean that the 273 LTs or the 34 LCDRs have never served in a leadership positions. Therefore, the remaining individuals in these grades will have to serve in a division officer billet sometime during their 5 years of service as a LT.

Matrix C-2 depicts individuals assigned to Supply and Fiscal billets, or approximately 1.2% of total personnel. Half of the individuals assigned in this category are serving in leadership/management billets and 94.2% of the assigned individuals are below the rank of LCDR. This structure suggests that further research regarding the utilization of

subspecialty coded individuals be considered, as one might expect financial manager subspecialty coded individuals to be serving in the more senior billets. No individuals are serving in CO, XO, or Department Head positions.

Matrix C-3 depicts individuals serving in the Services functional area, representing 6.7% of total personnel. Distribution of individuals within the grade structure is fairly representative. However, 61.2% of the individuals assigned to services billets are not currently receiving any leadership experience. No individuals are serving in CO/XO positions. Seventeen percent of the LTJGs and ENSs are serving in either an XO equivalent, Department Head, Division Officer or Branch Head billet.

Matrix C-4 depicts personnel assigned to the Management Administration functional area, which represents 11.4% of total personnel. Some 31.6% and 17.8% of the individuals are serving in Department head and Division officer billets, respectively. On the other hand, 34.5% of the individuals are not serving in a leadership qualifying position.

Matrix C-5 depicts personnel assigned to the Personnel Management functional area, or 6% of the total personnel. Grade distribution is good, as is CO/XO experience with 14.9% of the individuals serving in a CO/XO position. On the other hand, 55.3% of the individuals are not serving in management billets. Of particular concern is the lack of ENS and LTJGs serving in Division Officer or Branch head functions; over 70% of the 01/02s are not serving in a leadership function.

Matrix C-6 depicts personnel serving in General Personnel billets, representing 10.6% of the total personnel. Grade distribution is similar to the grade distribution of the total structure, although distribution of 06 through 03s is slightly higher than that of the total structure. Over 61% of the individuals are not presently serving in leadership functions. Specifically, only 6.5% of the personnel are serving in either CO or department head functions. On the other hand, 33% of the ensigns are serving in either department head, division officer, or branch head billets.

Matrix C-7 depicts individuals serving in the Human Resources Management (HRM) functional area, which includes 7% of the total individuals. No CAPTs are assigned to HRM billets. Additionally, 58.7% of the individuals are serving in billets without leadership characteristics. Similarly, 64.6% of the ensigns/lieutenants junior grade are not serving in leadership functions.

Matrix C-8 depicts personnel serving in Training billets, or 11.9% of the total personnel. As in the case of the HRM structure, there are no 06s serving in this functional area. However, there are 2 CO and 4 XO CDRs assigned to training. Over 69% of the individuals are serving in billets without leadership experience. Of particular concern is the fact that 77% of the Ensign/ Lieutenants junior grade are not filling Division or Branch head functions.

Matrix C-9 depicts personnel assignments to the Sciences functional area, representing only 1.6% of total personnel. This structure is characterized by being predominated by LTs and a lack of incumbents in leadership billets (78.3%).

Matrix C-10 depicts personnel assigned to Engineering billets, or 2.1% of the total personnel structure. Similar to sciences, individuals assigned to engineering billets fail to serve in leadership functions with over 72% being thus assigned. On the other hand, there is fairly equal distribution among the grades with the exception of ensigns. This latter fact probably reflects the more recent emphasis on recruiting technically qualified individuals.

Matrix C-11 reflects personnel assignments in the Staff and Fleet Command functional area, which represents 2.2% of total personnel assignments. No CAPTs are assigned to this functional area and there is only one individual serving in a CO or XO billet. About 64.7% of the individuals are serving in billets characterized as "no leadershio." Within the leadership category, individuals serving in department head functions outnumber division or staff functions by a 2:1 ratio.

Matric C-12 depicts personnel serving in billets classified as Shore Operations billets, representing 10.6% of total personnel. Only one LCDR and no CDRs are present in this functional area. The distribution of individuals

in this functional area probably reflects the expanded utilization of women in non-traditional duty stations such as Naval Facilities. Similarly, the large number of Ensign and Lieutenant junior grade branch heads probably reflect this fact also. Over 53.4% of the individuals are serving in billets exhibiting managerial characteristics.

Matrix C-13 depicts individuals serving in the Communications functional area, or 7.6% of the total personnel. While there are no 06 individuals assigned to this functional area and only one 05, 26.9% of the personnel are represented by 04s. While slightly over half of the structure lacks management traits, there are 11 individuals, or 9.2%, serving in CO/XO billets. Additionally, 48.5% of the Ensigns are serving in management functions.

Matrix C-14 depicts individuals assigned to the Intelligence/Cryptology functional area, representing 5.3% of the total personnel. There are no 06s assigned and no assignments to CO/XO functions. Similarly, 83% of the individuals do not appear to be serving in billets requiring managerial skills.

Matrix C-15 depicts assignments to the Automated Data Processing functional area, or 8% of total personnel. Over 92% of individuals serving in this particular functional area appear to be serving in billets without managerial experience. Likewise, no individuals are serving in CO or XO billets and only 2 individuals are serving in department head functions.

Finally, Matrix C-16 depicts personnel assigned to the Naval Operations, General functional area, which represents 1.6% of total personnel assignments. All grades except 04 are represented, with 60% of the individuals assigned to this function area, serving in the grade of Ensign. No individuals are serving in CO/XO billets, and only 40% of the personnel are serving in billets with managerial characteristics.

Distribution by years of commissioned service, depicted in Table 3.5 reflects at the more senior year group, the effects of small numbers of accessions and promotion and continuation on a twenty-five year career. Similarly, the larger numbers in the junior year groups reflect the policy of increased assessions and the lack of promotion policy and continuation rate impact. The stock vectors also reflect a tendency to assign women into areas to which they had previously been assigned, thus the 2nd/3rd years of commissioned service assignments compare as follows:

Functional Area	# of 2nd YCS Personnel Assigned	# of 3rd YCS Personnel Assigned
Supply/Fiscal	2	4
Services	17	13
Management Admin	26	24
Personnel Mgnt	11	9
General Personnel	25	19
Human Resources Mgnt	12	13
Training	27	27
Sciences	2	4
Engineering	8	6
Staff/Fleet Command	7	3
Shore Operations	37	35

Communications	23	23
Intelligence/Cryptology	11	13
Automated Data Processing	21	21
Naval Operation, General	5	4

One final note regarding the stock vectors is necessary. The fourth year of commissioned service with a total of 80 individuals does not reflect a recruiting problem or low accession policy; rather, the numbers reflect a change in the obligated length of service from three to four years between FY76 and FY77.

The relatively large continuation rates reflect the high retention rates experienced by URL women. If one assumes that 100 individuals enter the service, then 69% of these individuals would be on active duty at the end of the third year of commissioned service and 57% would be on active duty at the end of the fourth year. Official retention records tend to support these high retention rates with retention rates for URL OCS women in FY76 reported as 55.06% as compared to all URL officer retention rates of 39.62% in FY76. Likewise, FY77 rates compare as follows: URL OCS women 56.25%, all URL officers 37.20%. (OP 132 retention statistics) It is assumed that the .615 and .714 continuation rates, respectively for the 20th to 21st years of commissioned service and the 21st to 22nd years of commissioned service, represent both voluntary and statutory retirements. Indeed, it would appear that once an 110X woman officer has reached the twelfth year of commissioned service, she will not leave the service until she is

retirement eligible. Maintenance of these high rates in the future will probably be predicated on the social awareness of women officers, the type of employment offered, and the private sector demand for qualified women.

Availability rates do not appear to present any problems for women assignments except perhaps at the eighth through tenth years of commissioned service when many women officers attend postgraduate school. Actually, the absolute numbers for postgraduate attendance show that the greatest attendance has occured at the third year of commissioned service which is the rationale for providing two career path options in Table 3.7. However, the effect of postgraduate school attendance is greater at the eighth through tenth years due to the reduced numbers of women in these length of commissioned service cells. It may be necessary to alter postgraduate school assignment patterns to provide a more balanced length of commissioned service distribution of availability rates.

4. Personnel versus Requirements Analysis

In this section the current status of 110X women officers vis-a-vis requirements for any URL officers, i.e., the 1000 billet structure, shall be examined. Essentially, this section examines the current total demand structure, i.e., all the 1000 billets (less students and TPS&D), in relation to 30% of the supply structure, i.e., all the 110X women officers (less students and transients). No

conclusions will be drawn as to the effect of the current status of women on the future stocks; however, potential problem areas will be assessed, if relevant.

Table 3.9 compares the percentages of functional area and personnel utilization, respectively, to total functional requirements and total personnel. Additionally, the percentage of individual functional area billets filled by 110X women officers are projected in the third column of Table 3.9. In analyzing Table 3.9, the following functional areas show a greater than ± 1.5% difference in percentages of total requirements vis-a-vis total personnel:

Functional Area	# of Total Requirements	% Personnel of Total Personnel	% Difference
Services	4.1	6.7	+2.6
Management Admin	8.7	11.4	+2.7
Personnel Mgnt	7.9	6.0	-1.9
General Personnel	7.8	10.6	+2.8
Training	15.5	11.9	-3.6
Engineering	5.3	2.1	-3.2
Staff/Fleet Command	9.2	2.2	-7.0
Shore Operations	6.0	10.6	+4.6
Naval Operations, General	5.0	1.6	-3.4

Generally, women might be over-represented in the Services and Shore Operations functional areas. On the other hand, women are under-represented in the Supply/Fiscal, Personnel Management, Training, Sciences, Engineering, Staff and Fleet Command, and Naval Operations-General categories.

Table 3.9

COMPARISON OF REQUIREMENTS AND PERSONNEL

Functional Area	# of Total Requirements	% Personnel of Total Personnel	% Personnel of Requirements
Supply & Fiscal	2.5	1.2	14
Services	4.1	6.7	49
Management/ Administration	8.7	11.4	39
Personnel Management	7.9	6	23
General Personnel	7.8	10.6	41
Human Resources Management	6.7	7	32
Training	15.5	11.9	23
Sciences	2.6	1.6	18
Engineering	5.3	2.1	12
Staff and Fleet Command	9.2	2.2	7
Shore Operations	6	10.6	53
Communications	7.2	7.6	32
Intelligence/ Cryptology	4.5	5.3	36
Automated Data Processing	7	8	35
Naval Operations General	5	1.6	10
Total	100	100	29

Additionally, room for growth exists in the Management/ Administration, Human Resources, Communications, Intelligence, and ADP categories. This dichotomy may result from the interaction of a number of different factors, including: the lack of qualification of women officers for certain 1000 designated billets, the informal placement officer restrictions regarding "women only" and "male only" billets, the technical nature of the requirements, prejudice of individual Commanding Officers and the impact of historical utilization of women officers. Except for under representation in the Personnel Management functional area, the other under represented functional areas are those in which women have not previously filled requirements or are not considered technically/operationally qualified, such as training requirements. Regarding over-representation, potential problem areas exist in the Shore Operations category in wh ich 53% of the requirements are filled by 110X women and the Services functional area in which 49% of the requirements are filled by women. Policy considerations regarding this situation include a determination of the ideal ratio of actual sea going experience versus shore only experience for these functional areas, or shore experience plus a certain amount of training, or sea going Temporary Additional Duty (TAD) experience, permitted under the modification of Title 10 Article 6015.

Regarding grade distribution, total personnel compares to total distribution as follows:

Grade	% of Total Requirements	% of Total Personnel	% Personnel of Billet Grade Category
06	10.9	.7	1.7
05	17.7	2.8	4.5
04	25.5	5.3	6.0
03	28.8	31.2	31.2
02	13.6	14.0	29.6
01	3.5	46.0	37.5

Besides the irregular billet distribution, resulting from lateral input of URL warfare officers at the 03 grade level, and the small numbers of 05s and 06s vis-a-vis the 110X personnel structure, previously discussed in sections B-2 and C-3 of this chapter, the difference between distribution of personnel and requirements becomes significant, particularly at the 01/02 grade levels. Not apparent from this analysis is the fact that 101% of the ensign/lieutenant junior grade requirements are filled by 110X women.

Regarding leadership characteristics, the following information providing a comparison of requirements' leadership characteristics with 110X women personnel utilization is significant:

	CO	XO	DEPT HEAD	DIV OFFICER	BRANCH HEAD	STAFF
% of Total Billets	7.1	5.3	14.9	15.9	6.9	8.8
% of Total Personnel	1.6	1.6	10.4	12.0	9.2	5.0

Thus, with the exception of Branch Head requirements, utilization of women officers is significantly less than might be expected given similar representation between

billets held and potential billets to be filled. "No leadership" billets vis-a-vis a total of billet requirements compares to assignment in non-leadership billets vis-a-vis total personnel assisgnments as follows: 41.1% of billets are in the no leadership category and 60.4% of personnel are in the no leadership category. It therefore appears that women are serving in more non-leadership positions than would appear to be equitable given the demand structure. This inequity is probably a result of a combination of factors: the aforementioned factors regarding traditional assignments, the small numbers of women officers, and the managerial qualifications of men opposed to women at the various grade levels. It would appear that the numbers of women in non-leadership positions, exceeding the percent of "no leadership" positions by 20 percentage points, merits significant assignment policy considerations.

Regarding the individual functional areas, highlights of the various functional area vis-a-vis personnel utilization will be presented below. In the Services functional area, the inventory of ENS/LTJG 01/02 110X women officers is 1.5 times greater than 01/02 requirements. In particular, women are assigned to Branch Head billets, which are either not coded with the 1000 designator or are coded with the rnak of LT or greater. Likewise, one Ensign is assigned to a XO equivalent position, which is either the one LT XO equivalent requirement or a non-1000 designated billet. In the Managerial/Administration functional area,

110X women are assigned in excess of "no leadership" requirements and Ensigns/Lieutenants junior grade are in excess of Ensign/Lieutenant junior grade department head requirements. In the Training functional area, Ensign/ Lieutenant junior grade women are assigned to Department Head functions; however, there are only two 01/02 department head billets. In the Staff and Fleet Command functional area, 30 Ensigns/Lieutenants junior grade are assigned to 12 01/02 billets, which includes 6 women officers in these grades assigned to department head and division officer billets, for which there are no requirements in this functional area. In the Shore Operations functional area, 135 Ensigns and Lieutenants junior grade are assigned to 116 Ensign/Lieutenant junior grade requirements. Ensigns/Lieutenants junior grade are also assigned in excess of requirements at the ratio of 50:14 in the Intelligence/ Cryptology functional area. Likewise, 81 01/02s are assigned to 43 01/02 billets in the Automated Data Processing functional area.

Throughout the individual structures, there are examples of updetailing, detailing in excess of requirements, and assignment of women officers to other than 1000 designated billets. There is room for expansion of the role of women officers, particularly in terms of filling leadership/ managerial requirements. The following chapters will examine alternatives to achieving expansion of women's roles and the problems which may be experienced in this effort.

IV. MODEL RESULTS

A. INTRODUCTION

The purpose of this chapter is twofold: first, to describe the means by which the model described in Chapter II was integrated with the requirements and personnel data bases developed in Chapter III; and secondly, to display and analyze the results of the projected numbers of women and their career employment patterns forecasted by the model described in Chapter II. The subsequent sections of this chapter will address the macro, or total employment of women, and the micro, or the employment of women in a specific functional area, aspects of the career development issue. For reference, the functional areas in which women serve were depicted in Table 3.3.

Prior to discussing the career employment issues, it is necessary to discuss in some detail the means by which the data were entered into the model in order to compute the twenty year forecasts. First, requirements data for both the unadjusted requirements, contained in Appendix B, and the adjusted requirements, described in Section B of this chapter and contained in Appendix D of this thesis, were entered into the model. For the total requirements' model and the individual functional area requirements' models, separate personnel inventories, or the stock vectors, contained in Table 3.5, were also entered into the model.

The reader is reminded that running the model from a specific point in time, i.e., the current status of 110X women officers, may be a serious shortcoming of this thesis in that past employment of women has not been taken into consideration. The extent to which 110X women's past career employment in terms of functional area employment or leadership roles differs from current 110X women's employment may require a correctional factor which has not been accounted for in our model. Besides the requirements and personnel inventories, the availability data of personnel to fill the requirements, depicted in Table 3.8 and the continuation rates, contained in Table 3.6, were also entered into the model.

The interactive features of the model permitted changes in accession rates and the numbers of requirements. However, in order to change availability or continuation rates, it would have been necessary to input totally different data. Due to the lack of historical data concerning the employment of women in a specific functional area, the lack of future forecasts regarding the use of 110X women officers, the lack of future rates for the promotion of 110X women officers, and the lack of potential retention patterns for these officers, it was assumed that availability and continuation rates would not change over a twenty year period. Therefore, all of the subsequent twenty year forecasts of the ratios of 110X women to requirements designated with the 1000 designator code are based on constant availability and continuation rates.

The two interactive features of the model permitted changes in accession rates and growth of the requirements base at any time. The specific accession figures and rates at which requirements would grow per year are discussed for each individual forecast in Section C of this chapter. Therefore, it becomes necessary to discuss the grade range chosen to permit growth in the requirements file. Growth for the total requirements and the requirements in each functional area was permitted in the grades of LT through CDR. The decision to limit growth to these grades was based on the assumption that the shore establishment would not expand and that any increase in requirements would occur in already existing activities. Furthermore, as CAPT billets are very carefully scrutinized prior to being so designated, generally requiring compensation,and as ENS/LTJG billets are rarely written in the shore establishment, the majority of billet increases would, of necessity, occur in the 03 through 05 grades.

The remaining decision to be made prior to producing the forecasted ratios of personnel to requirements involved the year at which the model would cease simulation, i.e., the 5, 10, 17, 20, 22, 25 or 30 year point. A twenty year framework was chosen for two basic reasons. First, 20 years allowed a reasonable personnel management framework within which to examine the variety of issues developed by this research project. Secondly, 20 years allowed for a reasonable career progression pattern with an authorized retirement point.

The following sections will address the means by which the requirements were reduced in size to approximate the size of the current personnel inventory, and the projected ratios of 110X women officer inventories to requirements under a variety of conditions.

B. METHODOLOGY TO REDUCE FUNCTIONAL AREA REQUIREMENTS

As mentioned in Section B2 of Chapter III, there are some 3549 designated billets carrying the designator 1000 in excess of the numbers of 110X women officers available to fill these billets. Therefore, a methodology was required to reduce the requirements base, displayed in Appendix B, both for the total billet base and for the individual functional areas, to a level approximating that of the supply of women officers currently in the active duty inventory. Several approaches toward the adjustment of the requirements' bases were considered. One approach was to adjust the functional requirements on the basis of the percentage of billets filled in a particular functional area by the number of personnel in that same functional area. Another approach involved reducing the total requirements and the individual functional area requirements by a constant number of billets; however, considering the varying numbers of total billets in the functional areas, this approach was considered infeasible.

Therefore, it was decided to approach the reduction of the demand requirements in the following manner: Ensign and

Lieutenant junior grade levels were considered to be constant numbers, that is, the reduction process would not be applied to the ENS/LTJG billets, as 101% of 1000 designated billets in these grades are filled by 110X women officers. It thus became necessary to subtract the 01/02 grade requirements and personnel from their respective demand and personnel area matrices. The remaining number of personnel in the Lieutenant through Captain grades, in each functional area, was then divided by the remaining requirements in the Lieutenant through Captain grade, for the particular functional area. The resultant percentages for each functional area were then multiplied by the total requirements in the applicable functional area, in order to determine the adjusted demand matrix. For example, in the General Personnel functional area depicted in Appendix B-5, the total number of billets is 397. The total number of personnel serving in this functional area is 167. The 01/02 grade requirements and personnel are then subtracted from their respective requirements and personnel data, leaving 362 billets and 83 officers in the grades of LT through CAPT. The 83 personnel figure is then divided by the 362 requirements figure. The resulting percentage, 22.9%, is then multiplied by each element of the General Personnel functional area in the grades of LT through CAPT. The original Ensign and Lieutenant junior grade requirements are then added to the adjusted 03 through 06 requirements, thus determining the adjusted

requirements for this functional area. The following percentages were obtained in reducing each functional area:

Functional Area	Personnel/ Requirements	% Applied to 03-06 Billets
Supply and Fiscal	6/103	5.8
Services	40/172	23.3
Management Admin	79/374	21.1
Personnel Management	57/361	15.8
General Personnel	83/362	22.9
Human Resources Mngt	61/247	24.7
Training	76/625	12.2
Sciences	12/127	9.4
Engineering	8/163	4.9
Staff and Fleet Command	21/456	4.6
Shore Operations	24/189	12.7
Communications	34/281	12.0
Intelligence/ Cryptology	32/214	14.9
Automated Data Processing	44/314	14.1
Naval Operations, General	8/232	3.5

The individual functional area adjusted requirements were then summed to provide the total adjusted requirements figures. The adjusted requirements for the total structure and the individual functional areas are contained in Appendix D.

The primary problem encountered in this process involved rounding. First, in reducing a particular grade, a choice between the various leadership categories was often necessary. The decision on which leadership category to "round up" was determined by considering the entire unadjusted requirements structure in a particular grade relative to the total number of billets in that grade. A similar problem also occurred in the totals column of the adjusted requirements, whereby it was necessary to either "round up" or "round down." Again, a review of the applicable unadjusted demand matrix was used to solve any dilemma.

Following development of the adjusted requirements figures, it was then possible to examine the behavior of the 110X women inventories relative to the requirements structure for the macro (total structure) and micro (individual functional area) models.

C. PROJECTIONS OF 110X WOMEN OFFICERS INVENTORIES IN TWENTY YEARS

In order to develop a sensitivity for the impact of set accession rates and changes in the requirements base for 110X women officers, it was necessary to run a series of controlled projections whereby the ratios of 110X women to the 1000 designated billets at the 20 year point could be ascertained; and the meaning of these ratios in terms of the availability of leadership billets for 110X women could be assessed. Therefore, it became necessary to produce a series

of projections in which either the requirements base or the accession base, or both aspects of the model were changed.

However, prior to determining the scenario for the various projections, it was necessary to determine a method for establishing accession levels for the total requirements, or macro structure, and the individual functional areas, or micro structures, and to establish some method by which the projections of the model would be assessed. Two methods of establishing the accession levels for the various experiments were considered feasible. The first method may be referred to as the top down approach, whereby an acceptable accession level for the total, or macro, requirements under the various scenarios was determined. This accession level then became a constraint used in determining the accessions for the individual functional areas. The second method of determining accession levels may be referred to as the bottom up approach. Under this concept, acceptable accession levels for the individual functional areas were determined, and the sum of the individual functional area accessions was used as the accession data for the macro model. As current plans regarding the 110X women officer accessions were obtained from OP-01, it was decided to employ the top down approach in establishing accession levels for the total requirements and individual functional areas.

The need to assess the appropriateness of the accession levels required the establishment of a set of criteria with which to measure the twenty-year results of the experiments. It appeared necessary for the criteria to be restrictive enough to be within reason; yet, not so restrictive as to make any deviation from a single ratio of personnel to requirements unacceptable. Therefore, criteria were established which would permit a range of ratios of available personnel to requirements, a range of grades to be judged under this criteria, and an acceptable deviation within this grade range.

Regarding the criteria by which a personnel to requirements ratio would be judged as being acceptable or unacceptable, two sets of figures were established, one for the reduced requirements contained in Appendix D and the other for the unadjusted requirements depicted in Appendix B. For the reduced requirements of Appendix D, the ideal personnel to requirements ratio was considered to be 1:1, i.e., one person per billet. As a 1:1 ratio is rarely attained, it was determined to permit leeway on either side of this ratio; therefore, a ratio of .5 (or 1/2 person per billet) to 2.0 (or two persons per billet) was considered acceptable. Leniency in terms of permitting two persons per billet was justified due to the expanding use of 110X women in the Navy, the declining numbers of warfare specialist, and anticipated Navy shortfall in its capability to fill the 1000 designated billets. For the unadjusted requirements, or the current structure billets coded with the

1000 designator, the ideal personnel to requirements ratio was considered to be .5 personnel to every 1 billet, based on an assumption that future policy might dictate that women fill half of the 1000 designated structure billets. Similar to the aforementioned 1 person per billet ratio, leeway was also permitted on either side of the .5 to 1 ratio. Therefore, the acceptable criterion for the unadjusted requirements was established at .25 to 1.75, i.e., 1/4 person per billet to 1 3/4 persons per billet. Additional rationale for the aforementioned sets of criteria included allowances for rounding errors, allowance for the impact of the availability and continuation rates (especially on the very small functional areas such as the Supply and Fiscal functional area), errors in billet structure coding and future alteration of policy regarding the use of 110X women.

As the twenty year point does not encompass promotion to Captain, this grade was not included in the range of grades judged by the .5 to 2.0 and .25 to 1.75 ratios. Additionally, as the Ensign requirements structure is known to be underwritten and the Lieutenant junior grade requirements overwritten, as discussed in Chapter III, the Ensign and Lieutenant junior grade ratios were combined and a single ratio for these two grade categories was examined. Within this grade range, only one grade ratio could be outside the bounds of the criteria ranges. Two or more grades failing to satisfy the criteria constituted an "unacceptable" structure.

Having established the criteria, it therefore became necessary to determine the types of projections which should be run. The accession levels and projected demand increases used in deciding on the projections to run were generally based on the planned numbers of women officers (OASD (M;RA&L)) and on an estimate of the impact of warfare specialty shortfalls on the numbers of women officers. The first set of projections used the adjusted requirements base depicted in Appendix D and the personnel inventories in Table 3.5. The first projections of this set were based on an accession level of 233 and no increase in the requirements base over the twenty year period. The second projections of this set were based on an accession rate of 300 women and an increasing requirements structure over the twenty year period. The second set of projections resulted from combining those individual functional areas that failed to exhibit satisfactory performance characteristics and that appeared to be amenable to combination, e.g., the Supply and Fiscal functional area was combined with the Services functional area as the tasks performed in each of these functional areas appeared to be similar. The following adjusted requirements and personnel inventories were combined for the experiments in this set: Supply and Fiscal with Services; Sciences with Engineering; and Staff and Fleet Command with Intelligence and Naval Operations, General. The first projections of this second set were based on an overall accession rate of 233 women with a

constant requirements structure; the second projections of this set were based on an overall accession rate of 300 women with an increasing requirements structure. The third set of projections were derived from the unadjusted requirements base depicted in Appendix B and the current women inventories contained in Table 3.5. The first projections of this third set were based on an accession rate of 400 women with no increase in demand. The second projections of this third set were based on an accession rate of 500 women with an increase in requirements. The fourth and final set of projections paralleled the design of the aforementioned second set of projections and involved a combination of the unadjusted requirements for the same functional areas listed above. The first series of projections was based on an overall accession rate of 400 women with no increase in requirements; the second series was based on an overall accession level of 500 women with an increase in requirements. A synopsis of the design for running each set of projections is provided in Table 4.1. Each set of projections was run for the total and individual functional area requirements' structures. The results and analysis of these projections will be addressed in the subsequent sections of this chapter, as will the rationale for the specific accession rates and requirements' increases.

Analysis of the subsequent projections will also focus on two other issues: movement to steady state, the point at which no change in the personnel to requirements ratios

Table 4.1

PROJECTIONS, CRITERIA AND ACCESSION LEVELS FOR MACRO AND MICRO FUNCTIONAL AREAS

Type of Requirements	Scenario	Accession Level	Criteria
Adjusted Requirements (Appendix D)	Constant Requirements	233	.5 - 2.0, ENS/LTJG - CDR one grade may be off
Adjusted Requirements	Increasing Requirements Yr. 1 = .24, Yr. 2 = .19, Yr. 3 = .16, Yr. 4 = .14	300	.5 - 2.0, ENS/LTJG - CDR one grade may be off
Adjusted Requirements	Combined Functional Areas, Constant Requirements	233	.5 - 2.0, ENS/LTJG - CDR one grade may be off
Adjusted Requirements	Combined Functional Areas, Increasing Requirements Yr. 1 = .24, Yr. 2 = .19, Yr. 3 = .16, Yr. 4 = .14	300	.5 - 20, ENS/LTJG - CDR one grade may be off
Unadjusted Requirements (Appendix B)	Constant Requirements	400	.25 to 1.75 ENS/LTJG to CDR one grade may be off
Unadjusted Requirements	Increasing Requirements Yr. 1 = .12, Yr. 6 = .14, Yr. 10 = .12	500	.25 to 1.75 ENS/LTJG to CDR one grade may be off
Unadjusted Requirements	Combined Functional Areas, Constant Requirements	400	.25 to 1.75 ENS/LTJG to CDR one grade may be off

Unadjusted Requirements	Combined Functional Areas, Increased Requirements Yr. 1 = .12, Yr. 6 = .14 Yr. 10 = .12	500	.25 to 1.75 ENS/LTJG to CDR one grade may be off

occurs, and the implications of the personnel to requirements ratios for leadership/management experience availability. In running an experiment over a certain time frame, steady state attainment becomes important as a factor in determining feasibility of the system over the long run. In analyzing this aspect of the experiments, attention will primarily be focused on the ENS through CDR grade levels for both the total and individual functional areas requirements structures, with emphasis on their similarities and differences. The CAPT grade level will be omitted in this analysis as the "short" time frame of the experiment does not encompass promotion to the CAPT grade.

The subsequent analysis highlights the implications of the personnel to requirements ratios for leadership/management experience availability. Consideration was primarily focused on the relationship of CO billets to other managerial billets, as discussed in Chapter III, and the percentage of "no leadership" billets, i.e., those billets which failed to evidence leadership characteristics, also discussed in Chapter III, to total billets for the twentieth year. In order to examine this feature of the projections, a method of determining the filled leadership/managerial categories for the requirements structures was required. The following methodology was utilized in the determination of these categories. The personnel to requirements grade ratios in the twentieth year were applied to the respective requirements

within a particular functional area. This grade ratio was then multiplied by the applicable leadership/management category positions. For grade ratios over one, the excess was entered in the "no leadership" category. In this manner, the adjusted CO/XO and related Department Head and Division Officers billets which were filled for the various functional areas were thus determined. In determining the "no leadership" percentage, the total number of filled "no leadership" positions were divided by the total adjusted billets for a specific functional area. Although attention was primarily focused on the total structure, similarities and differences between the total and individual functional area structures were also examined. In those projections which depict an increase in requirements, the number of personnel filling billets in the leadership and "no leadership" categories was not determined due to computational complexities; however, generalizations concerning these aspects are discussed.

1. Adjusted Requirements: Constant Requirements

This experiment examines the relationship of the 110X women personnel inventories to the reduced requirements found in Appendix D. The scenario included constant requirements as depicted in Table 4.1. The total adjusted requirements projections were first run at an initial accession level of 250 women, as this figure approximates the current yearly 110X women officer accession rate,

exclusive of 110X women required for sea duty and other warfare specialties (e.g., aviation). This accession rate of 250 women was judged to be unacceptable according to our criteria of .5 to 2.0, inclusive, personnel to billets ratio. Therefore, it was necessary to rerun the model until an acceptable accession rate was established. The acceptable accession rate was determined to be 233. Thus, 233 accessions became the overall accession constraint by which the 15 individual functional area accession rates were determined.

Initial accessions for the individual functional areas were determined by multiplying the total accessions by the ratios of the individual functional area requirements to the total requirements. Adjustments were then made to the individual functional areas so that the optimal combination of accessions within the 233 accession constraint could be attained. Despite this finetuning, seven of the individual functional areas were considered to be unacceptable as per the previously stated criteria: Supply and Fiscal, Sciences, Engineering, Staff and Fleet Command, Shore Operations, Intelligence, and Naval Operations, General, as more than one grade failed to satisfy the aforementioned personnel to requirements ratios. The failure of these functional areas to fall within the bounds of acceptability is thought to result from a combination of factors including: the small numbers of requirements and the relationship between the requirements, personnel inventories,

availability and continuation rates. Table 4.2 provides a synopsis of the results of the first experiment. The following analysis will address performance to steady state, or the point at which there is no change in the ratios of personnel to requirements, and the implications of the personnel to requirement ratios for leadership/management experience availability.

For the macro structure ENS, LTJG, and LT grades, steady state was attained by the 3rd, 5th, and 13th years, respectively. For LCDR and CDR grades, steady state attainment was not accomplished within the "short" twenty year time frame of the experiment. The fluctuations present in these grades also evidenced the nature of the requirements structure and the effect of the personnel inventory, availability and continuation rates upon this structure. Regarding the individual functional areas, the personnel to requirements ratios generally followed the pattern of the total structure with the ENS, LTJG, and LT grades attaining steady state and the LCDR and CDR grades evidencing wide and varying fluctuations. Figure 4.1 provides a comparison of the performance to year 20 of the Human Resources Management (HRM), Supply and Fiscal, and the Total functional area matrices for this experiment.

In examining leadership/managerial experience availability, emphasis will primarily focus on the relationship between women filling CO billets to women filling other leadership billets and the percentage of "no leadership" billets to total billets for the twentieth year. For

Table 4.2

FUNCTIONAL AREA RESULTS AT YEAR 20
REDUCED REQUIREMENTS, ACCESSIONS 233, CONSTANT DEMAND

		Results by Grade				
Accession	Functional Area	01&02[1]	03[2]	04[2]	05[2]	06[2]
233	Total	.8(3,5)	1.99(13)	1.64	3.05	1.14
6	Supply & Fiscal	.6(3,5)	1.78(6)	0(2)	0(2)	0
12	Services	.87(3,5)	.74(13)	.05	.87	0
20	Management Administration	.83(3,5)	1.04(13)	.54	1.69	.50
18	Personnel Management	1.15(3,5)	1.13(13)	.44	.56	.20
21	General Personnel	1.77(3,5)	1.35(13)	.70	1.28	.33
22	Human Resources Management	.68(3,5)	1.35(13)	1.16	1.29	.50
35	Training	.63(3,4)	1.73(10)	1.84(19)	1.94	.27
2	Sciences	1.0(1,3)	0(4)	0(1)	0(1)	0
19	Engineering	.51(3,5)	7.01(13)	6.41	9.3	0
6	Staff and Fleet Command	1.25(3,5)	.59(7)	0(8)	0(8)	0
20	Shore Operations	.51(3,5)	2.69(13)	2.41	5.99	4
16	Communications	.54(3,5)	1.69(13)	.78	.05	.25
12	Intelligence	1.35(1,4)	1.34(11)	.11(18)	0(18)	0
18	ADPS	1.19(3,5)	1.4(13)	.55	1.44	1.0
6	Naval Operations General	.63(3,5)	.59(7)	0(4)	0(4)	0

[1]Figures in parentheses indicate year at which steady state occurred for 01 & 02 respectively

[2]Figures in parentheses indicate year at which steady state occurred. Grades without a figure in parentheses had not reached steady state by year 20.

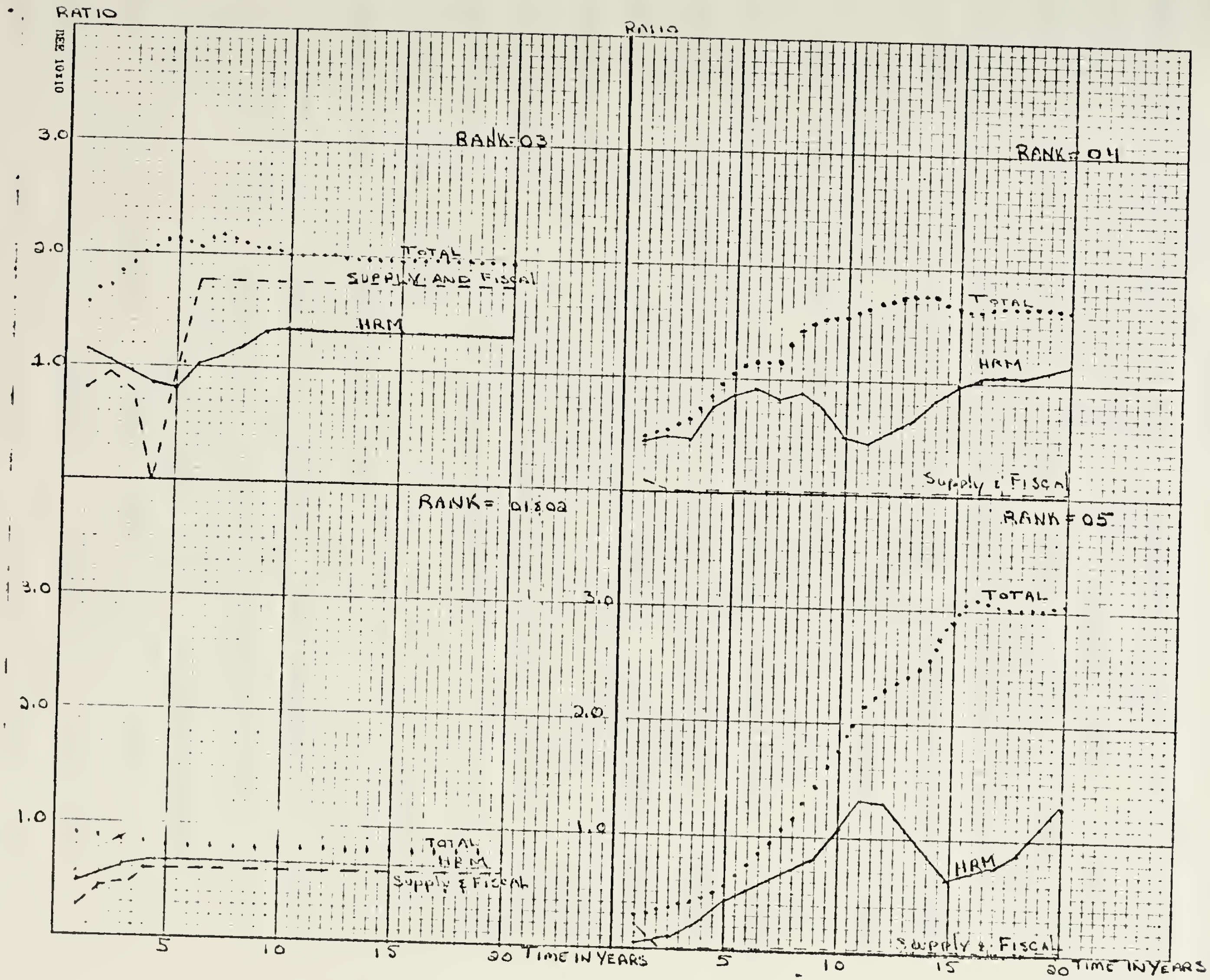


FIGURE 4.1: Comparison of Personnel to Requirements Ratios Over 20 Years of Total, Supply and Fiscal and Human Resources Management (HRM) Adjusted Requirements, Constant Demand

the total requirements matrix, command opportunity is available as revealed by the CAPT CO-CDR XO diagonal: 24 women CAPTs are in CO billets while 16 women are filling CDR XO positions. Additionally, 48 women are in LCDR Department Head positions and 46 LTs are filling Division Officer billets. Likewise, the CDR command opportunity indicates that: 14 CDRs are in CO billets while only 11 LCDRs are in XO positions. Regarding Department Head and Division Officer billets, women are filling 30 LT Department Head positions, 50 ENS/LTJGs are in Division Officer billets. In both situations, there appears to be a lack of women XOs relative to COs which might result in a loss of either discretion in assigning 110X women officers or a lowered opportunity for command for the women, then would appear to be available if only numbers of women filling CO billets are examined. A similar situation occurs for the CAPT CO opportunity at the Department Head-Division Officer level, where a fewer number of women are serving in Division Officer billets than in Department Head billets. Therefore, critical requirements in terms of women officer managerial development could be considered to be the XO and Division Officer billets. The individual functional area structures present varying degrees of this same theme. CO/XO opportunity appears to be either almost non-existent (Supply and Fiscal, Services, Engineering, Staff and Fleet Command, Intelligence, Naval Operations, General) or there are significant shortfalls of women filling XO billets, Department Head and/or Division

Officer positions. This situation in certain requirements structures may be explained on the grounds that the positions in a particular functional area are designated for other specialties, the requirements lack the necessary characteristics to be classified as a leadership position, or the primary task of a functional area is to provide advice. The remaining requirements structures, on the other hand, simply lack the necessary command positions.

The foregoing discussion leads to consideration of the "no leadership" category. The total requirements structure indicates that 58% of the women are in billets characterized as lacking in leadership, with the individual functional areas experiencing a high of 91% (Engineering) to a low of 17% (Management Admin), with the majority clustering between the 40th and 60th percentile. This situation appears, in some instances, to be due either to the small numbers of requirements in certain functional areas and/or the type of billet (i.e., advisory, technical) present in a particular functional area. Examples of these phenomenon include the Staff and Fleet Command and the Sciences functional areas. In the other functional areas, this situation is due to the greater number of billets classified as "no leadership" relative to the total number of billets.

2. Adjusted Requirements: Increasing Requirements

The scenario of this experiment included increasing requirements as depicted in Table 4.1. This increase

in requirements was predicated on the fact that the Naval Service, by the early 1980's, forecasts to have an active duty inventory of approximately 2000 110X women officers, a 500 officer increase over the current women's inventory. The increased inventory also represents an increase in the percent of women filling 1000 designated billets. In order to reflect this increasing demand, it was necessary to increase requirements in the 03 through 05 grades by approximately 125 per year for four years, or a 24% increase in requirements for the first year, for the second year a 19% increase of year one requirements, for the third year a 16% increase in year two requirements, and for the fourth year a 14% increase in year three requirements. The accession rate for the total requirements structure was determined to be 300, with none of the grades falling outside the criteria range. These 300 accessions thus became the overall accession constraint in determining the accession rates for the 15 individual functional areas. The accessions for the individual functional areas were determined initailly by equally dividing the yearly increase of 125 women between the 15 functional areas and then adding this figure to their accession levels established in the first experiment. Adjustments were then made to these accession rates so that the optimal combination of accessions within the 300 accession constraint could be attained. With this fine tuning, only four of the 15 functional areas failed to

satisfy our criteria, i.e., .5 to 2.0 personnel per billet, only one grade may be outside of these limits. Table 4.3 provides a synopsis of the projections under this scenario.

For the total requirements structure ENS, LTJG, and Lt grades, steady state, or the point at which there was no change in the personnel to requirements ratios, was accomplished by the 3rd, 5th, and 9th years, respectively. In addition, the LCDR grade also attained steady state in the 19th year. Steady state attainment was not achieved in the CDR grade. However, this grade did evidence a steady increase in the 20 year time frame of the projections. Regarding the individual functional areas, steady state for the ENS and LTJG grades generally followed the pattern set by the total requirements structure. The LT grade, however, fluctuated widely, ranging from year five to year thirteen. Three of the functional areas (Services, Staff and Fleet Command, Management Admin) also achieved steady state at the LCDR level, while one functional area (Staff and Fleet Command) attained steady state in its CDR grade. For the most part, however, the LCDR and CDR grades evidenced fluctuating patterns. Figure 4.2 provides a comparison of the performance to year 20 of the Human Resources Management (HRM), Supply and Fiscal, and the Total functional area matrices for this experiment.

In examining leadership/managerial experience availability found for these projections, a comparison of the personnel to requirements ratios of the constant demand

Table 4.3

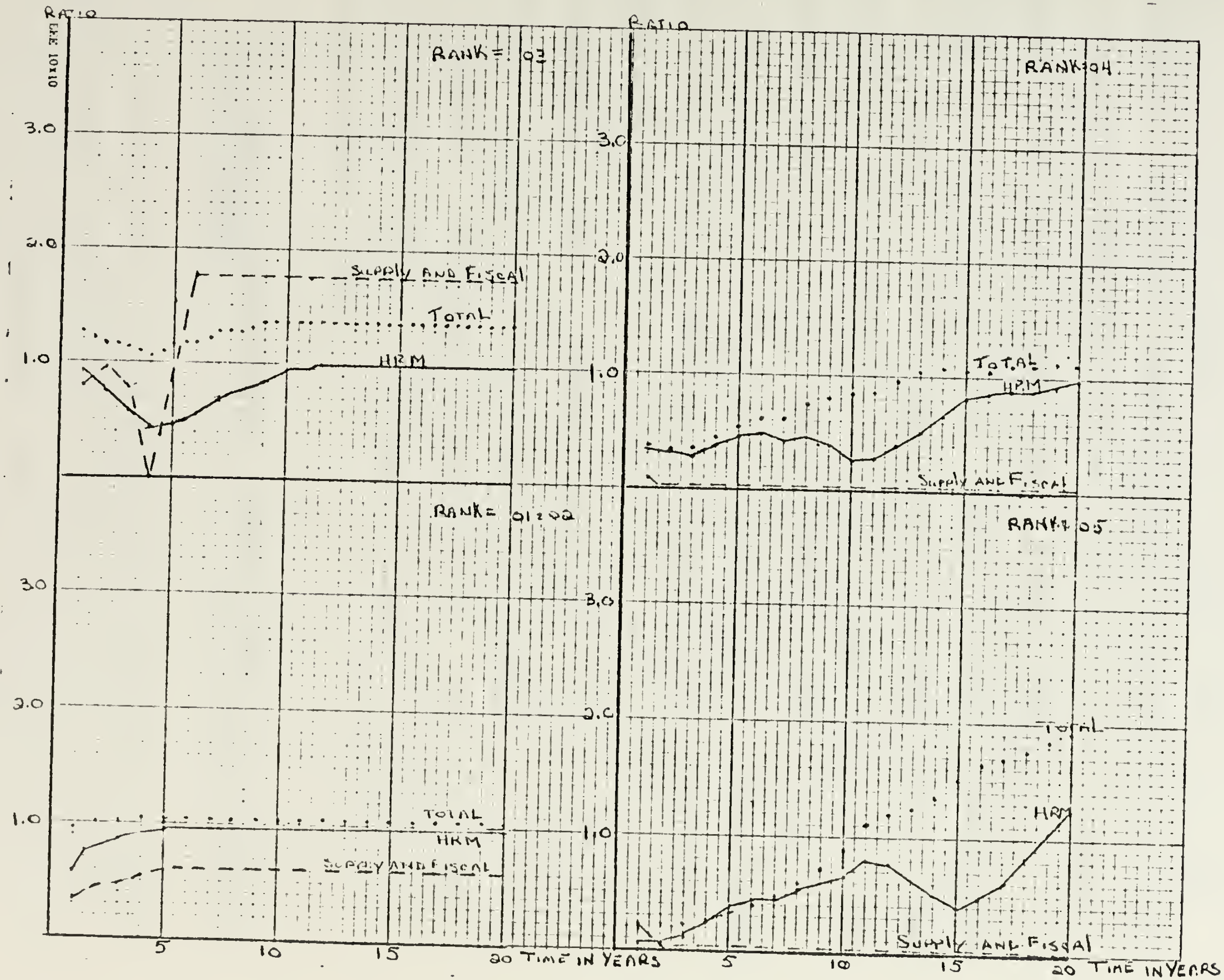
FUNCTIONAL AREA RESULTS AT YEAR 20
REDUCED REQUIREMENTS, ACCESSIONS 300, INCREASING DEMAND

		Results by Grade				
Accession	Functional Area	01&02[1]	03[2]	04[2]	05[2]	06[2]
300	Total	1.03(3,5)	1.33(9)	1.11(19)	1.92	1.14
06	Supply & Fiscal	.60(3,5)	1.78(6)	0(2)	0(2)	0
20	Services	1.18(3,5)	.90(11)	.63(19)	5	0
30	Management/Administration	1.19(3,3)	.87(12)	.56(19)	1.63	.50
20	Personnel Management	1.43(3,5)	.85(13)	.47	.65	.20
24	General Personnel	2(3,5)	.73(12)	.36	.72	.33
30	Human Resources Management	.96(3,5)	1(13)	.97	1.24	.50
49	Training	.88(3,5)	1.4(13)	1.57	1.66	.27
2	Sciences	1.00(1,3)	0(4)	0(1)	0(1)	0
20	Engineering	.56(3,5)	8.07(13)	8.44	9.99	0
7	Staff and Fleet Command	1.58(3,3)	1.30(5)	0(8)	0(8)	0
25	Shore Operations	.63(3,5)	1.85(13)	1.90	6.77	4
24	Communications	.83(3,5)	2.18(13)	.84	.56	0
18	Intelligence	1.71(1,2)	1.25(3)	.88	.56	0
18	ADPS	1.19(3,5)	.79(13)	.31	.96	1
7	Naval Operations, General	.79(2,4)	1.3(6)	0(4)	0(4)	0

[1] Figures in parentheses indicate year at which steady state occurred for 01 & 02 respectively.

[2] Figures in parentheses indicate year at which steady state occurred. Grades without a figure in parenthesis had not reached staedy state by year 20.

FIGURE 4.2: Comparison of Personnel to Requirements Ratios Over 20 Years of Total, Supply and Fiscal and Human Resources Management (HRM) Adjusted Requirements, Increasing Demands



projection of Section C1 and this experiment was made. The projected personnel to requirements ratios between the same functional areas of each projection were examined vis-à-vis one another and the desired 1 to 1 ratio. For the total requirements structure, the personnel to requirements ratios were generally better than those indicated by the results of the constant demand projection as they displayed a tendency to approach the ideal ratio of 1 person per billet and a decrease in the percentages of "no leadership" billets. In contrast, the individual functional areas exhibited the following results: six of the functional areas (Human Resources Management, Training, Communications, Shore Operations, Intelligence, Naval Operations, General) evidenced an improvement relative to the constant demand projection; six functional areas (Services, Management Admin, General Personnel, Engineering, Staff and Fleet Command, Automated Data Processing) reflected poorer ratios; three functional areas (Sciences, Supply and Fiscal, Personnel Management) exhibited similar ratios.

3. Adjusted Requirements: Combined Matrices, Constant Requirements

The scenario of this projection included no change in requirements, as depicted in Table 4.1. As a variation on the Section C1 experiment, however, this projection investigated the impact of combining various individual functional areas found to be unacceptable in the prior constant demand experiment. Other reasons considered in

combining two or more functional areas included similarity of professional qualifications (e.g., technical background) and/or small size of the functional area either in terms of the number of billets or number of leadership/managerial requirements. In this manner, the following requirements were combined: Supply and Fiscal with Services; Staff and Fleet Command with Intelligence and Naval Operations, General; and Sciences with Engineering. The personnel inventories for the individual functional areas were also combined for use in this projection. The accession rates for these combined functional areas were initially established on the basis of summing the individual accessions rates determined for the projections described in Section C1. The result of this experiment indicates that the combined Supply and Fiscal-Services and the combined Staff and Fleet Command-Intelligence-Naval Operations, General functional areas provide adequate billet structures; however, the combined Sciences-Engineering functional area was still considered to be unacceptable in terms of our criteria. Table 4.4 provides a synopsis of the projections under this scenario.

For the combined Supply and Fiscal-Services functional area ENS, LTJG, and LT grades, steady state was attained by the 3rd, 5th, and 13th years, respectively. For the Staff and Fleet Command-Intelligence-Naval Operations, General functional area ENS, LTJG, and LT grades, steady state was achieved by the 3rd, 5th, and 12th years, respectively. For the combined Sciences-Engineering functional area ENS and LTJG

Table 4.4

COMBINED FUNCTIONAL AREA RESULTS AT YEAR 20
REDUCED REQUIREMENTS, ACCESSION 233 (TOTAL) CONSTANT DEMAND

		Results by Grade				
Accession	Functional Area	01&02[1]	03[2]	04[2]	05[2]	06[2]
18	Supply, Fiscal & Services	.81(3,5)	1.13(13)	.52	2.11	1
21	Sciences and Engineering	.52(2,5)	5.22(13)	2.99	3.87	0
24	Staff and Fleet Command, Intelligence, & Naval Operations - General	1.4(3,5)	2.18(12)	1.61	1.30	0

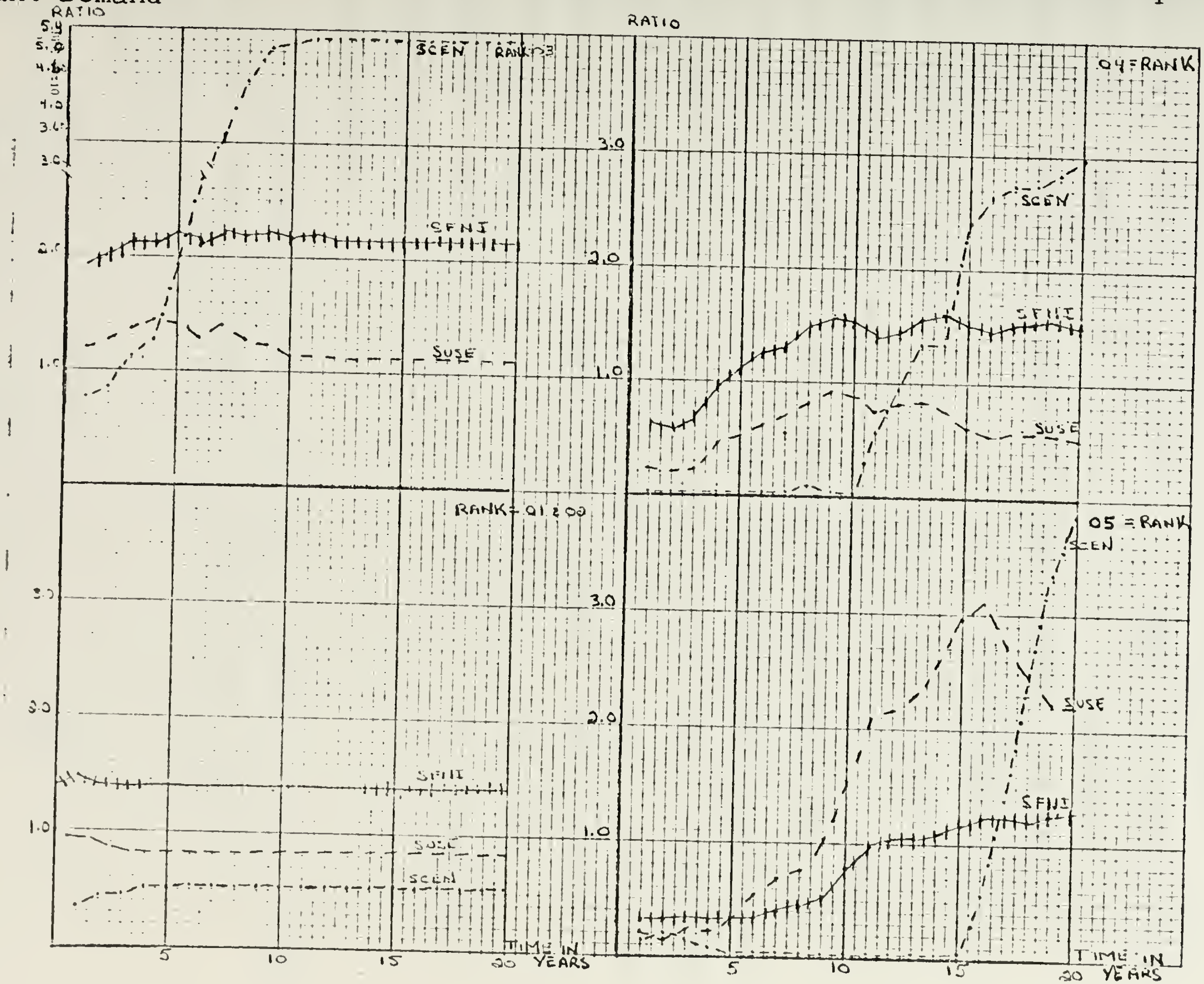
[1]Figures in parentheses indicate year at which steady state occurred for 01 & 02 respectively.

[2]Figures in parentheses indicate year at which steady state occurred. Grades without a figure in parenthesis had not reached steady state by year 20.

grades, steady state was accomplished at the 2nd and 5th years, respectively. LT grade steady state in this functional area was not achieved. The LCDR and CDR grades experienced varying fluctuations, as seen with the total requirements structure described in Section C1. Figure 4.3 provides a comparison of the performance to year 20 of the functional areas for this projection. (In Figure 4.3, SUSE = Supply and Fiscal - Services; SCEN = Sciences - Engineering; SFNI = Staff and Fleet Command - Intelligence - Naval Operations, General).

In examining leadership/managerial experience availability evidenced by these combined matrices, attention again will primarily focus on relationship of CO billets to XO billets and the related Department Head and Division Officer requirements relationship, plus the percentage of "no leadership" billets to total billets at the twentieth year. For the combined Supply and Fiscal-Services functional area, command opportunity shows limited CO/XO opportunity as there is only one CAPT CO billet filled and no CDR XO positions are filled. However, 3 LCDR Department Head positions are filled, as are 7 LT Division Officer billets. Likewise, no CDR CO billets are filled. However, 1 woman officer is filling a LCDR XO billet, 3 women officers are in LT Department Head positions, and 19 women officers are filling ENS/LTJG Division Officer billets. In the combined Staff and Fleet Command-Intelligence-Naval Operations - General functional area, no CO/XO positions are filled, only 1

FIGURE 4.3: Comparison of Personnel to Requirements Ratios Over 20 Years of Supply and Fiscal - Services (SUSE), Sciences-Engineering (SCEN), and Staff & Fleet Command-Intelligence - Naval Operations, General (SFNI) Combined Functional Areas Adjusted Requirements, Constant Demand



LCDR is in a Department Head billet, 2 Lieutenants are filling Division Officer billets, and 7 ENS/LTJG are filling Division Officer billets. The remaining combined functional area, Sciences-Engineering, reveals the following: 1 CDR is filling a CO billet; however, no LCDRs are gaining the requisite experience in order to relieve this CDR as CO. One LT is filling a Department Head position and one LT is filling a Division Officer billet. Generally, for the three combined matrices, there appears to be a lack of command and executive officer opportunity with an equally serious shortage of women serving as Department Head and Division Officers. Again, this situation may be explained on the grounds that the positions in a particular functional area are designated for other specialties, e.g., Supply and Fiscal billets are normally designated for Supply Corps officers, requirements in a functional area lack the necessary characteristics to be classified as a leadership billet or that the primary task of a functional area is to provide advice.

Regarding the "no leadership" category, the combined functional areas evidence the following percentages of individuals filling billets without any leadership characteristics.

Supply and Fiscal-Services	33%
Staff and Fleet Command-Intelligence-Naval Operations, General	71%
Sciences-Engineering	94%

Again, the size of the functional area and/or the type of billet present in a particular functional area influences these "no leadership" percentages.

4. Adjusted Requirement: Combined Matrices, Increasing Requirements

The final series of projections examined the relationship of the 110X women personnel inventories to the reduced requirements of seven functional areas that were combined to form three functional areas. For this series of projections an increasing requirements base was employed. The combined functional areas and personnel inventories are the same; Supply and Fiscal-Services; Staff and Fleet Command-Intelligence-Naval Operations, General; Sciences-Engineering. The accession rates for these combined functional areas were initially determined by summing the individual accession rates for each functional area depicted in Table 4.3. Only one of the three combined functional area projections was considered to be unacceptable, in terms of the criteria of .5 to 2.0 personnel to requirements ratios: Sciences-Engineering. Table 4.5 provides a synopsis of the results of the projections of personnel to requirements ratios.

For the Supply and Fiscal-Services combined functional area ENS, LTJG, and LT grades, steady state was attained by the 2nd, 4th, and 12th years, respectively. For the Staff and Fleet Command-Intelligence-Naval Operations, General combined functional area ENS, LTJG, and LT grades,

Table 4.5

COMBINED FUNCTIONAL AREA RESULTS AT YEAR 20
REDUCED REQUIREMENTS, ACCESSION 300 (TOTAL) INCREASING DEMAND

		Results by Grade				
Accession	Functional Area	01&02[1]	03[2]	04[2]	05[2]	06[2]
23	Supply, Fiscal and Services	1.07(2,4)	.98(12)	.70(19)	2.20	1.0
22	Sciences and Engineering	.52(2,5)	3.32(13)	1.90	3.87	0
32	Staff and Fleet Command, Intelligence, Naval Operations, General	1.76(1,5)	1.78(13)	1.32	1.08	.20

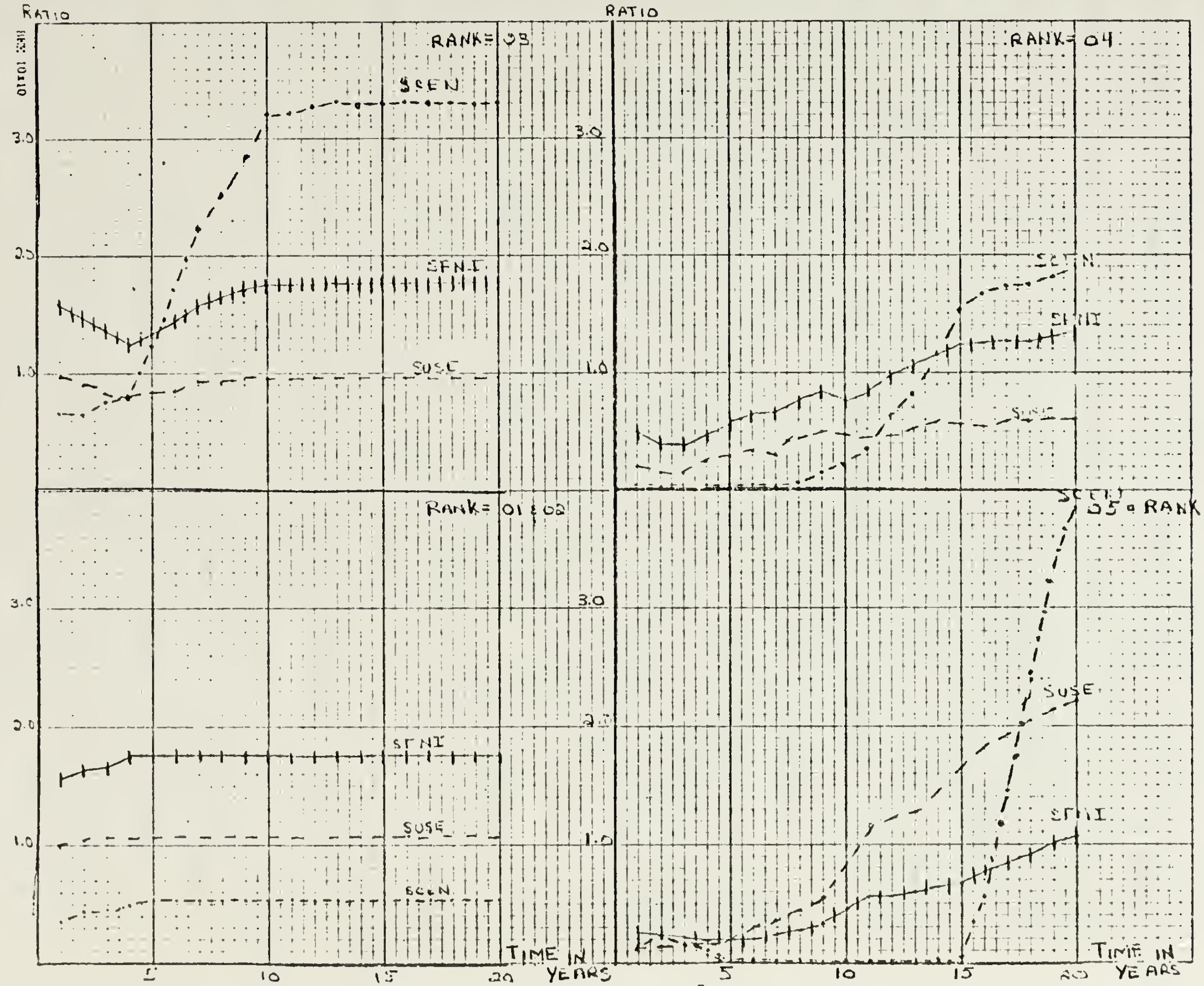
[1] Figures in parentheses indicate year at which steady state occurred for 01 & 02 respectively.

[2] Figures in parentheses indicate year at which steady state occurred. Grades without a figure in parenthesis had not reached steady state by year 20.

steady state was achieved by the 1st, 5th, and 13th years, respectively. For the Sciences-Engineering matrix ENS, LTJG, and LT grades, steady state was accomplished at the 2nd, 5th, and 13th years, respectively. The LCDR grade in the Supply and Fiscal-Services functional area attained steady state in the 19th year. The LCDR grade in the other combined functional areas and the CDR grades in all three experienced fluctuating patterns. Figure 4.4 provides a comparison of the performance to year 20 of these matrices for this experiment. (In Figure 4.4 SUSE = Supply and Fiscal-Services; SCEN = Sciences-Engineering; SFNI - Staff and Fleet Command-Intelligence-Naval Operations, General).

In examining leadership/managerial experience availability for this experiment, a comparison of the personnel to requirements ratios of the constant demand projections described in Section C3 and this projection was made. The personnel to requirements ratios of the six functional areas were examined and compared to the desired .5 to 1 personnel to requirements ratios. The combined functional areas exhibited the following results: the Supply and Fiscal-Services functional area personnel to requirements ratios generally were better than those indicated by the results of the projections based on no increase in the requirements; the Staff and Fleet Command-Intelligence-Naval Operations, General personnel to requirements ratios were generally poorer; and the Sciences-Engineering personnel to requirements ratios reflected ratios similar to those of the constant demand experiment.

FIGURE 4.4: Comparison of Personnel to Requirements Ratios Over 20 Years of Supply & Fiscal -Services(SUSE), Sciences-Engineering(SCEN), and Staff and Fleet Command-Intelligence-Naval Operations, General(SFNI) Combined Functional Areas Adjusted Requirements, Increasing Demand



5. Unadjusted Requirements: Constant Demand

This experiment examines the relationship of the 110X women personnel inventories to the unadjusted requirements found in Appendix B. The scenario for these projections included no growth in requirements as depicted in Table 4.1. Proceeding by the top down method of establishing accession rates, projections for the total unadjusted requirements were first run with an accession rate of 350 women. This accession rate was judged unacceptable according to the criteria established for the unadjusted requirements, i.e., .25 to 1.75 persons per billet, with no more than one grade falling outside of the criteria. It was therefore necessary to rerun the model until an acceptable accession rate was established. This accession rate was determined to be 400 women, which became the overall accession constraint by which the accession rates for the 15 individual functional areas were determined. Initial accessions for the individual functional areas were determined by multiplying the 400 accession rate by the percentages of billets in the individual functional areas to the total requirements. Adjustments were made to the individual functional areas' accession rates so that the optimal combination of accessions within the 400 accession constraint could be attained. With these adjustments, five of the individual functional areas were considered to be unacceptable in terms of the aforementioned criteria: Supply and Fiscal, Sciences, Staff and Fleet Command, Intelligence, and Naval Operations, General. Table 4.6

Table 4.6

FUNCTIONAL AREA RESULTS AT YEAR 20
UNADJUSTED REQUIREMENTS, ACCESSIONS 400, CONSTANT DEMAND

		Results by Grade				
Accessions	Functional Area	01&02[1]	03[2]	04[2]	05[2]	06[2]
400	Total	1.38(3,5)	.52(11)	.43	.58	.13
15	Supply & Fiscal	1.72(3,5)	1.38(10)	.02(11)	0	0
23	Services	1.79(3,5)	.44(11)	.33	1.13	0
36	Management/ Administration	1.52(3,5)	.40(12)	.25(17)	.66	.10
28	Personnel Management	1.60(,5)	.31(12)	.20	.28	.03
30	General Personnel	2.45(,5)	.43(10)	.26	.42	.07
37	Human Resources Management	1.18(3,5)	.56(13)	.56	.63	.14
64	Training	1.17(3,5)	.44(13)	.51	.48	.03
3	Sciences	1.50(1,3)	0	0	0	0
30	Engineering	.61(,5)	.64(13)	.89	.77	0
13	Staff and Fleet Command	2.50(,5)	.25(11)	.01(11)	0	0
35	Shore Operations	.89(3,5)	.56(12)	.58	1.25	.57
37	Communications	1.32(3,5)	.83(12)	.36	.59	.03
9	Intelligence	1.45(,5)	.05(10)	0	0	0
24	ADPS	1.62(3,4)	.30(8)	.18(17)	.38	.17
16	Naval Operations, General	1.33(,5)	.22(10)	.02(11)	0	0

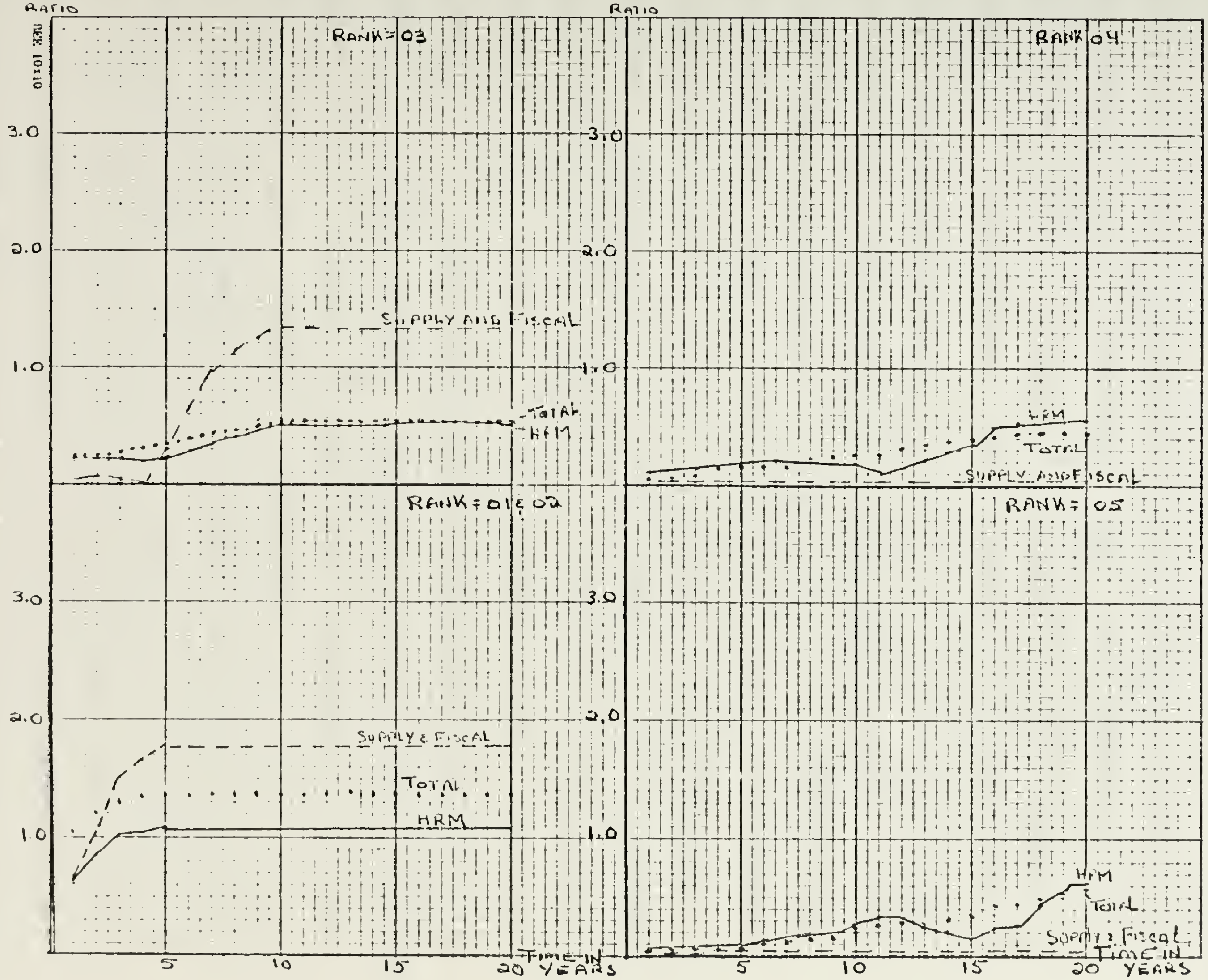
[1]Figures in parentheses indicate year at which steady state occurred for 01 & 02 respectively. (-,xx) indicates steady state for 01 was unknown.

[2]Figures in parentheses indicate year at which steady state occurred. Grades without a figure in parentheses had not reached steady state by year 20.

provides a synopsis of the results of the projections for this scenario. The following analysis will address performance to steady state and the implications of the personnel to requirements ratios for leadership/management experience availability.

For the total requirements structure, or Appendix B-1, ENS, LTJG, and LT grades, steady state, i.e., the point at which no further changes in the personnel to requirements ratios occurred, was attained by the 3rd, 5th, and 11th years, respectively. For the LCDR and CDR grades, steady state attainment was not accomplished within the twenty year time frame of the experiment. The fluctuations present in these grades also reflected the nature of the requirements structure and the effect of the initial inventories and availability and continuation rates upon this structure. Regarding the individual functional areas, e.g., Management Administration, attainment of steady state generally followed the pattern of the total requirements structure with the ENS, LTJG, and LT grades attaining steady state and the LCDR and CDR grades evidencing varying fluctuations. In several of the individual functional areas, the ENS grade became "overloaded," i.e., 10+ persons per billet, which was assumed to be from "large" accession rates relative to "small" ENS requirements. Figure 4.5 provides a comparison of the performance to year 20 of the Human Resources Management (HRM), Supply and Fiscal, and the Total functional areas for this experiment.

FIGURE 4.5: Comparison of Personnel to Requirements Ratios Over 20 Years of Total, Supply and Fiscal, and Human Resources Management (HRM) Unadjusted Requirements, Constant Demand



In examining the leadership/managerial experience availability evidenced by these functional areas, attention again will be paid to the relationship between women filling CO billets, XO billets, Department Head and Division Officer billets, and the percentage of "no leadership" billets to total billets for the twentieth year. For the total unadjusted requirements depicted in Appendix B-1, command opportunity is reflected by the following information: 24 CAPT CO billets are filled by women; 75 CDR XO positions are filled; 121 LCDR Department Head positions and 146 LT Division Officer billets are also filled. Likewise, the CDR CO-LCDR XO diagonal reveals the following: 50 CDR CO billets are filled by women officers as are 33 LCDR XO positions; additionally, 90 LT Department Head positions and 152 ENS/LTJG Division Officer Billets are filled by women officers. Except for the 33 women LCDR XO billets competing for 50 CDR CO positions, leadership availability appears to be very strong. However, the individual functional areas present a variety of patterns of leadership position availability. For instance, the Supply and Fiscal, Sciences, Staff and Fleet Command, Intelligence, and Naval Operations, General functional areas have no women serving in CO or XO positions, while the Services functional area does not have any women commanding officers. On the other hand, Human Resources Management, Training, Shore Operations, Automated Data Processing, and Management Admin functional areas present CO/XO opportunities in varying degrees. The Department

Head and Division Officer positions exhibit similar behavior, which will impact on the ability of women officers to gain the requisite managerial experience in order to qualify for a CO billet. This lack of leadership positions in certain functional areas may be explained as mentioned in prior experiments. Beyond this, the requirements simply lack command and/or supporting leadership positions.

The foregoing analysis leads to consideration of the "no leadership" category. The total requirements structure indicated that 51% of the women would fill billets failing to qualify as leadership positions. With the individual functional areas, this percentage ranges from a high of 88% (Intelligence) to a low of 24% (Shore Operations, Management Admin), with the majority clustering between the 40th and 75th percentile. In certain functional areas, the small numbers of requirements in certain functional area and/or the type of billet present controlled these percentages. However, in many of them, this situation was due simply to the greater number of billets classified as "no leadership" relative to the total number of billets.

6. Unadjusted Requirements: Increasing Requirements

This experiment examines the relationship of the 110X women personnel inventories to the unadjusted requirements, with a scenario of increasing requirements as depicted in Table 4.1. This increase in requirements was predicated on the following: predicated shortfalls of

warfare qualified officers in filling warfare designated shore billets thereby causing a redesignation of these billets to the 1000 designator category. An additional 1381 billets (663 non-flight aviation billets and 718 1050 billets) were determined to be a result of the aforementioned shortfalls and became the basis for increasing the 1000 designated requirements. In order to reflect this increasing demand, it was necessary to increase requirements in the 03 through 05 grades by approximately 425 for the first year, 515 for the 6th year, and 441 for the 10th year or a 12% increase in requirements for the first year, a 14% increase in requirements for the 6th year, and a 12% increase in requirements for the 10th year. These years were selected to reflect current and anticipated shortages of warfare qualified officers. As in the previous projections, the top down method of establishing accession rates was employed. The accession rate for the total requirements level was determined to be 500, with none of the grades falling outside of the criteria, i.e., .25 to 1.75 persons per billet with only one grade category not satisfying these limits. Thus, 500 accessions, which reflected a yearly increase of 100 women accessions over projections for the constant requirements, became the overall functional area accession constraint by which the 15 individual functional area accession rates were determined. The accessions for the individual functional areas were determined initially by averaging the yearly increase of 100 accessions for the

fifteen functional areas and then adding this figure to the accession rates established for the functional areas in the projections of Section C5. Adjustments were then made to the individual functional areas so that the optimal combination of accessions within the 500 accession constraint could be attained. With these adjustments, only three of the 15 functional areas were considered to be unacceptable in that they failed to satisfy the aforementioned criteria: Supply and Fiscal, Sciences, and Staff and Fleet Command. This represents a slight improvement over the constant requirements scenario. Table 4.7 provides a synopsis of the results of this experiment. The following analysis will address performance to steady state, or the point at which no change in the personnel to requirements ratios occurs, and the implications of the personnel to requirements ratios for leadership/management experience availability.

For the total requirements structure ENS, LTJG, and LT grades, steady state was attained by the 3rd, 5th, and 13th years, respectively. Steady state attainment in the LCDR and CDR grades was not accomplished, although these grades exhibited a steady increase in personnel to requirements ratios throughout the 20 year time frame of the experiment. Regarding the individual functional areas, attainment of steady state for the ENS, LTJG, and LT grades generally followed the pattern of the total requirements structure. As in the previous experiment, the ENS grade suffered an "overloaded" condition, that is, more than 10 persons per

Table 4.7

FUNCTIONAL AREA RESULTS AT YEAR 20
UNADJUSTED REQUIREMENTS, ACCESSIONS 500, INCREASING DEMAND

		Results by Grade				
Accession	Functional Area	01&02[1]	03[2]	04[2]	05[2]	06[2]
500	Total	1.72(3,5)	.46(13)	.37	.49	.13
21	Supply & Fiscal	2.32(,5)	2.62(13)	.50	.29	0
29	Services	2.26(3,5)	.39(11)	.33	1.16	0
40	Management/ Administration	1.67(3.5)	.32(10)	.22	.55	.10
34	Personnel Management	1.75(,5)	.28(13)	.19	.26	.03
38	General Personnel	2.68(,5)	.40(12)	.25	.39	.07
44	Human Resources Management	1.38(3,5)	.47(12)	.48	.55	.14
52	Training	.94(3,5)	.25(10)	.30	.29	.03
15	Sciences	3.93(1,5)	.46(9)	.01(11)	0	0
36	Engineering	.65(,5)	.51(12)	.73	.65	0
19	Staff and Fleet Command	3.0(,5)	.07(12)	.07	.04	0
41	Shore Operations	1.04(3,5)	.51(10)	.57	1.14	.57
45	Communications	1.58(3,5)	.74(12)	.31	.49	.03
27	Intelligence	2.4(,5)	.41(12)	.49	.28	0
29	ADPS	1.74(,5)	.27(10)	.17(17)	.35	.17
30	Naval Operations, General	2.33(,5)	.53(13)	.65	.31	0

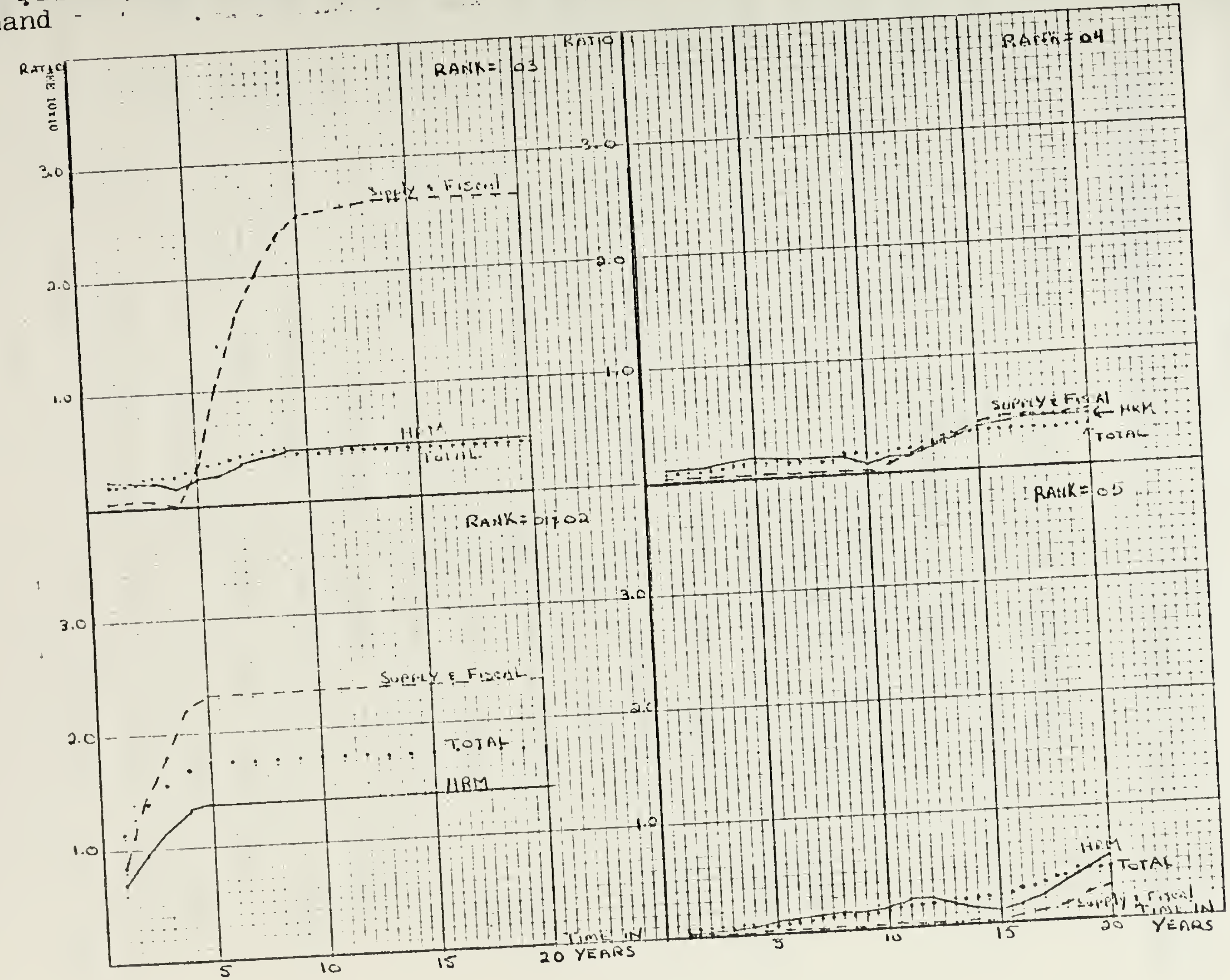
[1]Figures in parentheses indicate year at which steady state occurred for 01 & 02 respectively. (-,xx) indicates steady state for 01 was unknown.

[2]Figures in parentheses indicate year at which steady state occurred. Grades without a figure in parenthesis had not reached steady state by year 20.

billet. The majority of the functional areas experienced varying fluctuations in the LCDR and CDR grades, although two areas (Sciences and Automated Date Processing) attained steady state in the LCDR grade. Figure 4.6 provides a comparison of the Performance to year 20 of the Human Resources Management (HRM), Supply and Fiscal, and the Total functional area for the projections of personnel to these unadjusted requirements, forecasted to be increasing.

In examining leadership/managerial experience availability, a comparison of the personnel to requirements ratios of the constant requirements projections of Section C5 and these projections was made. The personnel to requirements ratios were examined vis-a-vis the projections in Section C5 and these projections and the desired 1/2 person per billet ratio. For the total structure, the personnel to requirements ratios are generally poorer than those indicated by the results of the constant requirements projections as they displayed a tendency to diverge from the ideal ratio, i.e., 1/2 person per billet, and an increase in the percentages of women filling billets characterized as providing "no leadership" experience. In contrast, the individual functional areas exhibited the following results: six of the functional areas (Sciences, Engineering, Staff and Fleet Command, Shore Operations, Intelligence, and Naval Operations, General) evidenced an improvement relative to the constant requirements projections and desired ratio; even functional areas (Services, Management Admin, Personnel

FIGURE 4.6: Comparison of Personnel to Requirements Ratios Over 20 Years of Total, Supply and Fiscal, and Human Resources Management (HRM) Unadjusted Requirements, Increasing Demand



Management, General Personnel, Human Resources Management, Training, and Automated Data Processing) reflected poorer personnel to requirements ratios; two functional areas (Supply and Fiscal, Communications) exhibited similar ratios.

7. Unadjusted Requirements: Combined Matrices, Constant Requirements

This experiment continues the examination of the relationship of the 110X women personnel inventories to the unadjusted requirements contained in Appendix B. The scenario included constant requirements as depicted in Table 4.1. As a variation on the Section C5 projections, however, these projections investigated whether a combination of the various individual functional areas, found unacceptable in the prior constant requirements projections and which could be logically combined, would result in an improvement in the personnel to requirements ratios. Therefore, the following functional areas were combined: Supply and Fiscal with Services; Staff and Fleet Command with Intelligence and Naval Operations, General; and Sciences with Engineering. The personnel inventories for the individual functional areas, depicted in Table 3.5, were also combined for use in this experiment. The accession rates for these combined functional areas were initially determined by summing the accession rates for the individual functional areas as depicted in Table 4.7. Only one of the three combined functional areas in these projections did not satsify the criteria of .25 to 1.75 bodies per billet: Staff

and Fleet Command-Intelligence-Naval Operations, General. Table 4.8 provides a synopsis of the results of these personnel to requirements projections. The subsequent analysis will examine performance to steady state, i.e., the point at which no further change in personnel to requirements ratios occurred, and the impact of the personnel to requirements ratios for leadership/management experience availability.

For the combined Supply and Fiscal-Services functional area, steady state for the ENS, LTJG, and LT grades was attained by the 3rd, 5th, and 12th years, respectively. For the Staff and Fleet Command-Intelligence-Naval Operations, General combined areas, the LTJG and LT grades achieved steady state in the 5th and 12th years, respectively. The ENS grade for the latter two combined functional areas exhibited an "overloaded" condition, i.e., 10+ persons per billet throughout the 20 year time frame. The LCDR and CDR grades in all three matrices evidenced varying fluctuations, as occurred with the total requirements struction in Section C.5. Figure 4.7 provides a graph of the 20 year personnel to requirements ratios for these combined functional areas. (In Figure 4.7, SUSE = Supply-Services, SCEN = Sciences-Engineering and SFNI = Staff and Fleet Command-Intelligence-Naval Operations, General).

In examining the leadership/managerial experience availability evidenced by these combined functional areas, attention will be focused on the relationship of women filling

Table 4.8

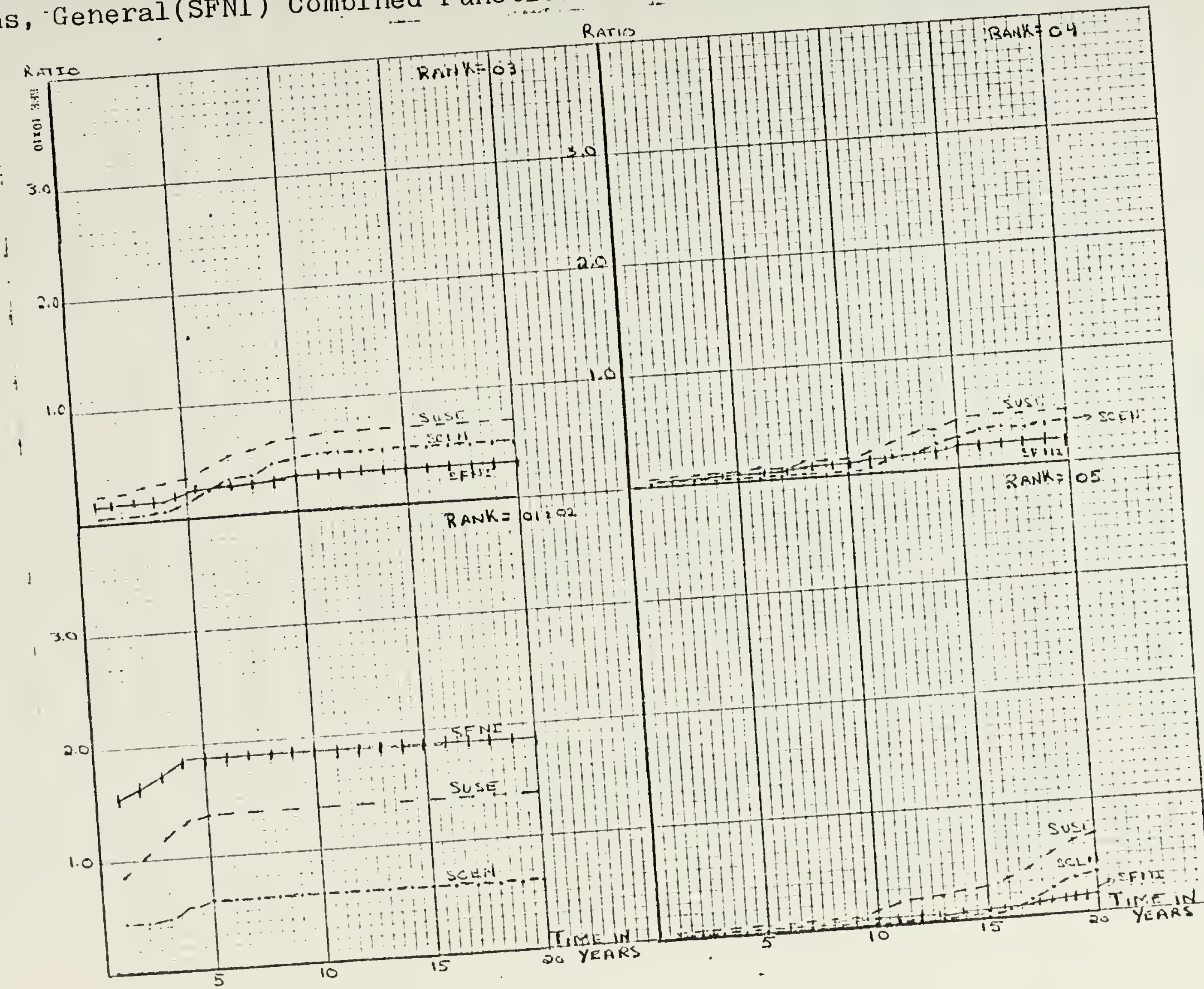
FUNCTIONAL AREA RESULTS AT YEAR 20
UNADJUSTED REQUIREMENTS, ACCESSION 400, CONSTANT DEMAND

		Results by Grade				
Accession	Combined Functional Area	01&02[1]	03[2]	04[2]	05[2]	06[2]
38	Supply & Fiscal, Services	1.38(3,5)	.70(12)	.48	.70	.10
33	Sciences & Engineering	.61(,5)	.51(12)	.37	.37	0.0
38	Staff and Fleet Command, Intelligence, Naval Operations, General	1.88(,5)	.33(12)	.22	.15	.01

[1]Figures in parentheses indicate year at which steady state occurred for 01 & 02 respectively. (-,xx) indicates steady state for 01 was unknown.

[2]Figures in parentheses indicate year at which steady state occurred.

FIGURE 4.7: Comparison of Personnel to Requirements Ratios Over 20 Years of Supply and Fiscal-Services(SUSE), Sciences-Engineering(SCEN) and Staff and Fleet Command-Intelligence-Naval Operations, General(SFNI) Combined Functional Areas Unadjusted Requirements, Constant Demand



CO billets to women filling XO billets, and the percentage of "no leadership" billets to total billets for the twentieth year. For the Supply and Fiscal-Services matrix, command opportunity appears to be limited: no women are filling CAPT CO billets; one women is in a CDR XO position, and 14 women are in CLDR Department Head positions. Another 22 women are filling LT Division Officer billets. Likewise, the command opportunity at the CDR grade is non-existent: no women CDRs are in CO billets; only one LCDR is in an XO billet; 10 LTs are in Department Head positions and 23 women are in ENS/LTJG Division Officer billets. For the combined Staff and Fleet Command-Intelligence-Naval Operations, General functional area, the CAPT command opportunity is poor: no women are filling CAPT CO billets; however, 2 women are in CDR XO positions, 2 LCDRs are filling Department Head positions, and there are 10 LTs in Division Officer billets. The CDR command opportunity reveals a similar pattern: one CDR is in a CO billet which is supported by one LCDR in an XO position. Additionally, there are 2 LT Department Heads and 7 women filling ENS/LTJG Division Officer billets. The combined Sciences-Engineering functional area evidences the following management experience availability: there are no CAPT CO billets; however, there are 3 CDRs in XO positions, one LCDR in a Department Head billet, and 9 LTs in Division Officer billets. However, there are 3 CDRs in CO billets, one LCDR in an XO position, one LT Department Head, and one ENS/LTJG Division Officer.

Generally for the three combined functional areas, there appears to be a lack of command and executive officer opportunity and a lack of supporting leadership positions, i.e., Department Head and Division Officer billets, so that it appears difficult for women to gain the requisite skills to qualify for command.

Regarding those billets having the "no leadership" characteristics, the combined functional areas evidence the following percentages of women filling billets without leadership characteristics to the total number of women in the functional area:

Supply and Fiscal-Services	36%
Staff and Fleet Command-Intelligence-Naval Operations, General	64%
Sciences-Engineering	77%

8. Unadjusted Requirements: Combined Functional Areas, Increasing Requirements

This last set of projections examines the relationshio of the 110X women personnel inventories to the unadjusted requirements depicted in Appendix B and permitted an increase in requirements as depicted in Table 4.1. The combined functional areas are again used in these projections. The combined functional areas and personnel inventories are the same as described in Section C7: Supply and Fiscal-Services; Staff and Fleet Command-Intelligence-Naval Operations, General; and Sciences-Engineering. The accession rates for these combined functional areas were initially determined by adding their individual accession rates for

the functional areas as depicted in Table 4.6. As with the projections in Section C7, only one of the three combined functional areas was considered to be unacceptable according to our criteria of .25 to 1.75 persons per billet: Staff and Fleet Command-Intelligence-Naval Operations, General. Table 4.9 provides a synopsis of the results of the inventory projections for these combined functional areas.

For the Supply and Fiscal-Services combined functional area ENS, LTJG, and LT grades, steady state was attained by the 3rd, 5th, and 12th years, respectively. For the Staff and Fleet Command-Intelligence-Naval Operations, General and the Sciences-Engineering functional area LTJG and LT grades, steady state was achieved by the 5th and 12th years, respectively. The ENS grade for these two combined functional areas exhibited an "overloaded" pattern, i.e., 10+ persons per billet, throughout the 20 year time frame of the projections. The LCDR and CDR grades of all three combined functional areas experienced fluctuating patterns. Figure 4.8 provides a comparison of the performance to year 20 of these functional areas. (In Figure 4.8 SUSE = Supply and Fiscal-Services, SCEN = Sciences-Engineering, SFNI=Staff and Fleet Command-Intelligence-Naval Operations, General).

In examining leadership/managerial experience availability for the projected women in these functional areas, a comparison of the personnel to requirements ratios for the projections developed for Section C7 and these projections

Table 4.9

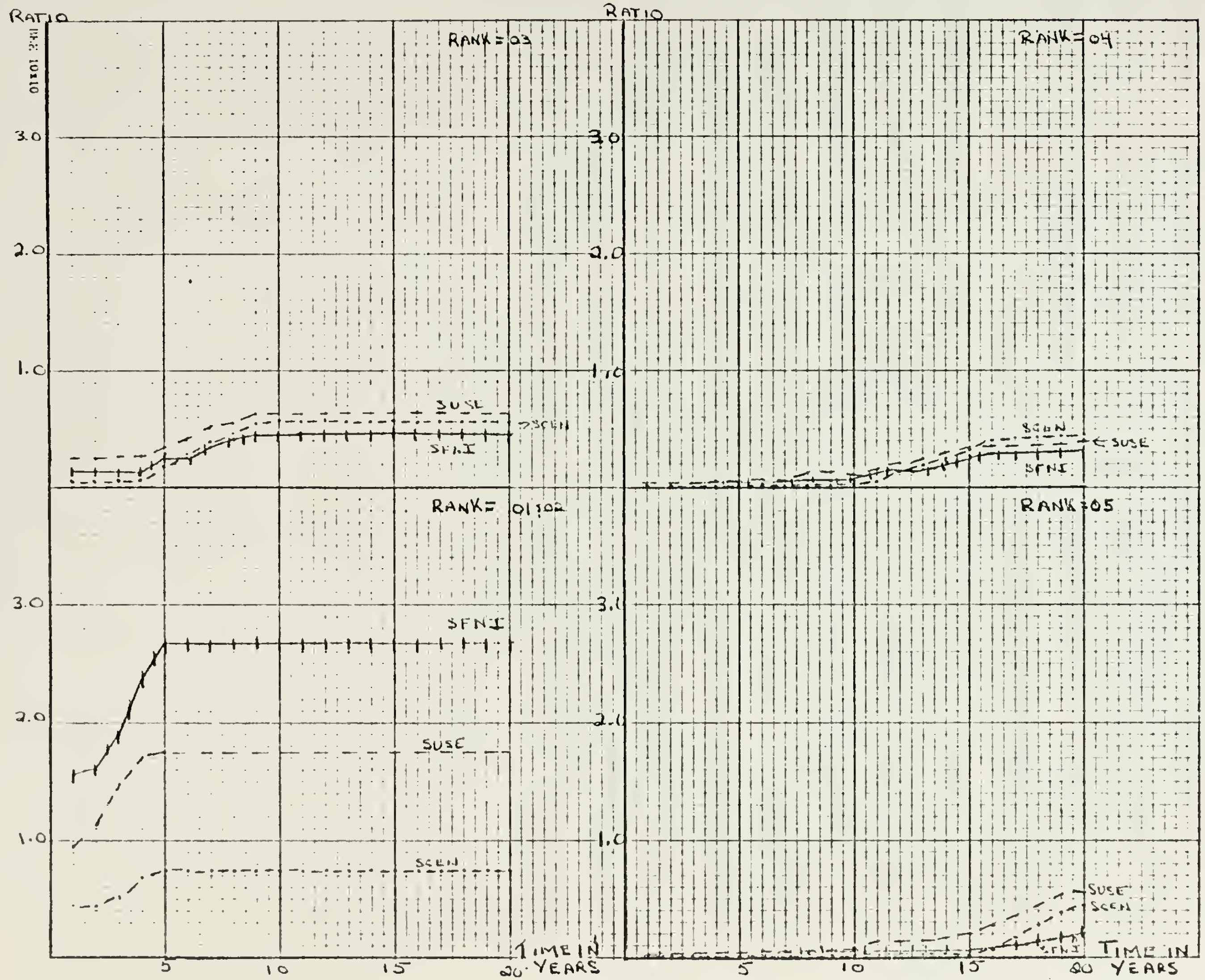
FUNCTIONAL AREA RESULTS AT YEAR 20
UNADJUSTED REQUIREMENTS, ACCESSION 500, INCREASING DEMAND

Accession	Combined Functional Area	Results by Grade 01&02[1]	03[2]	04[2]	05[2]	06[2]
50	Supply & Fiscal, Services	1.76(3,5)	.62(12)	.40	.58	.10
51	Science & Engineering	.75(,5)	.59(12)	.46	.46	.00
76	Staff and Fleet Command, Intelligence, Naval Operations, General	2.58(,5)	.48(12)	.32	.21	.01

[1]Figures in parentheses indicate year at which steady state occurred for 01 & 02 respectively. (-,xx) indicates steady state for 01 was unknown.

[2]Figures in parentheses indicate year at which steady state occurred.

FIGURE 4.8: Comparison of Personnel to Requirements Ratios Over 20 Years of Supply and Fiscal -Services(SUSE), Sciences-Engineering(SCEN) and Staff and Fleet Command-Intelligence-Naval Operations; General(SFNI) Combined Functional Area Unadjusted Requirements, Increasing Demand



contained in Table 4.9 were made. All three combined functional areas exhibited personnel to requirements ratios which were generally better than those indicated by the results of the projections in which there was no change in requirements. The results also displayed a tendency to approach the desired ratio of 1/2 body per billet and a decrease in the percentages of "no leadership" billets.

In summary, this chapter presented the methodology used to integrate the data base with the model and the results and analyses of the personnel to requirements projections designed to investigate the career development issue. The following chapter will discuss the conclusions of the research, including major problem areas, strengths and weaknesses, policy implications, and recommendations regarding the requirements data base, career patterns of 110X women officers and, finally, further research required.

V. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

This thesis has focused on the problems associated with 110X women officers' careers . Specifically, an attempt has been made to examine systematically the following questions regarding 110X women officers' career patterns:

- Can a woman officer become an expert in one functional area or subspecialty and attain managerial skills at the same time?
- What shore establishment billets provide these leadership skills?
- Would serving in several functional areas enable a woman to develop managerial and functional expertise?
- What policy considerations are involved in answering the preceeding questions?

In order to examine these questions a model has been developed that permits the examination of personnel flows relative to requirements for a twenty year period. To provide input to this model an extensive coding of billets and personnel characteristics has been accomplished. Following the coding of the requirements and available personnel and determination of certain patterns of personnel behavior, projections of personnel to requirements ratios for twenty years were attempted under varying conditions. The purpose of this

chapter is to reiterate the problems addressed in this study and to present the major conclusions and recommendations of the thesis. Additionally, suggestions are provided regarding further research into the subject of 110X women officer career development.

B. CONCLUSIONS

In the following section, the conclusions of this thesis will be discussed with specific emphasis on the strengths and weaknesses of the assumptions and methodology used in examining the problems of 110X women officers' career patterns. The conclusions will focus on three major topics: the requirements base, the current status of 110X women officers, and the twenty year forecast for the 110X women officers as developed by the model.

Regarding the requirement base, conclusions focus on both the methodology employed in this study and the problems of the requirements base itself. While the 1000 designated requirements base was the logical and proper choice for examining womens' career patterns, the requirements base may be both understated and overstated, in that billets coded with other designators in which women serve have been ignored, and billets coded with the 1000 designator which women are not permitted to fill have been included. Likewise, no correction was made for billets which appeared to be mis-coded as to grade, designator, or NOBC errors. Perhaps the most significant weakness in this method of coding the billet

base was the lack of access to activity organization charts and additional data on position descriptions such as the number of people controlled, the amount of funds monitored, and policy impact, so that a more specific series of leadership/management definitions could have been developed and used in actually coding the billets. However, given the resources readily available, the methodology employed in this study of examining the total officer structure of an activity, is considered the most appropriate for any officer community study which examines the communities' requirements base.

As long as filling leadership positions remains an important consideration for women's career development, it is essential that the 1000 designated billets be coded with the appropriate Department or Division Officer Additional Qualification Designation Code (AQD). Additionally, it is necessary to develop some means of crediting the records of women who have served in a billet that was a leadership position but was not coded with the 1000 designator. Such an effort would also enable personnel planners to determine actually which women officers have served in leadership positions rather than relying on a snapshot of the current status of women employed by this study.

Perhaps the single most important conclusion of this study regarding the requirements base which has serious implications for women officer career development is the <u>large number of billets in the junior grades that lack any</u>

leadership/managerial characteristics. As noted previously, the grade structure of the 1000 designated requirements seems to be misaligned, therefore requiring some type of realignment. These factors, coupled with inappropriate assignment of NOBC and designator codes on billets, lead to the conclusion that a comprehensive review of the officer requirements in the shore establishment is required. Such a review should encompass an examination of the total activity structure, that is, officers, enlisted, civilian personnel and contractual support, so that a clear picture of the shore establishment's manning situation can be obtained. Thus, by systematically reviewing the activities' structures, it becomes possible to consider such alternatives as substituting civilian requirements for military requirements and upgrading or downgrading of military and/or civilian requirements. Such a review could also result in a reorganization of the officer and enlisted manpower authorizations to include more comprehensive information regarding an activity's structure. Finally, data regarding the civilian structure of an activity could be restructured so that a total picture of an activity's manpower would be available to the community planners in Washington.

Regarding the current employment of 110X women officers, these women are assigned to many different billets, encompassing a variety of functional areas and leadership levels. Additionally, 110X designated women are assigned to a variety of activities at all command echelons and throughout

activities associated with the warfare communities. Women serving in the billets designated 1000 may or may not be gaining the managerial experience required in order to progress to more significant positions. In fact, this study concentrated on the following crucial question concerning leadership/managerial experience: Are there adequate numbers of 1000 designated requirements that provide the requisite leadership development and command opportunity for 110X women officers? Conclusions regarding this question will focus on the leadership/managerial experience availability and the percentage of "no leadership" billets to the total billet structure, and how these two issues impact on women officers' career development.

Prior to examining the actual conclusions of this study vis-à-vis the current status of women officers' serving in leadership positions, it is necessary to point out a potential weakness of this study. As officer fitness reports were not consulted and as a survey of women officers was not conducted, it was necessary to rely on the MAPMIS records and judgment to code the 110X women officers as far as leadership experience was concerned. Therefore, the estimates concerning the number of women serving in leadership positions may be over or understated. As previously noted, it is essential that coding of the 110X women as far as division and department head experience be accomplished.

Generally, there was an overall lack of adequate numbers of leadership/managerial billets available for women officers,

especially in the junior grades. Since women officers filled over 100% of the requirements in the ENS and LTJG grades, this paucity of leadership positions is of significant impact. Specifically, if one considers the entire requirements structure, command opportunity appeared to be available. On the other hand, there were problems relating to the availability of leadership positions in the XO, Department Head, and Division Officer categories. However, if one accepts the premise that a woman officer must have had not only managerial experience, but also must be an expert in a certain functional area, then the determination of overall command opportunity may not be a simple matter of examining the overall command billet availability. Therefore, it becomes necessary to consider the availability of command opportunity within the individual functional areas. For the Supply and Fiscal, Services, Sciences, Engineering, Staff and Fleet Command, Shore Operations, Intelligence, Automated Data Processing, and Naval Operations, General functional areas, there were virtually no women in CO or XO positions; however, junior officers are being assigned to all of these functional areas. This conclusion should not be assumed a condemnation of the assignment process, rather it may cause credibility gaps on the part of the junior women 110X officers who may not understand why a senior woman officer is not commanding an activity within her functional area. Of greater concern is the lack of XO, Department Head, and Division Officers in those functional areas where

Commanding Officer positions are available. This suggests that it may be necessary for a woman officer to obtain qualifying managerial experience in a field in which she has had no prior experience or she may need to substitute training or two division officer jobs for a department head job, and so forth.

In an effort to determine if it was possible to correct for this lack of managerial positions in certain functional areas, we attempted to combine those areas which were lacking in leadership availability and did not appear to be too dissimilar. In this respect, it is believed that certain of the functional areas, such as Sciences and Engineering, will never provide the necessary leadership/managerial billets to allow the 110X woman officer to gain this experience necessary for her career. However, 110X women officers continue to be assigned to 1000 designated billets within these areas that allow for only a slight possibility of attaining requisite leadership/managerial experience, not to mention command, in order to be competitive with their peers, both male and female.

Of particular concern is the lack of division officer and branch head positions for women serving in the ENS and LTJG grades. Whereas their male counterparts are traditionally serving in division officer positions at sea at this point in their careers, the women junior officers do not appear to be gaining this valuable experience. This may be placing the women officers at a disadvantage in the assignment process

when she competes at the 03 grade with a male officer for a particular billet. Basically, the woman officer must at this point rely on her functional, managerial, expertise and thus may be trapped in a functional area which has neither command opportunity nor command qualifying billets.

In conjunction with the above, over half of all the 1000 designated requirements were coded as providing "no leadership" experience. While the individual functional areas varied in terms of the numbers of "no leadership" billets, it appeared that many women would serve in a non-leadership position regardless of the functional area in which they were serving. This situation is not encouraging to the woman officer who is attempting to follow a career path which calls for division officer in the ENS/LTJG grades, Department Head in the LT grade, XO in the LCDR grade and CO in the CDR grade.

Further complicating this issue is the lack of standardization in organization and billet coding in the shore establishment, so that 110X women may be assigned to activities in which there are no managerial billets through which they could rotate. Great flexibility must be exercised by not only the assignment officers but also Commanding Officers of activities to which 110X women are assigned to insure development of managerial skills, i.e., assignment to billets coded with other than the 1000 designator code, assignment to unfilled civilian supervisory positions, etc.

Assessing the impact of the aforementioned factors vitally depends upon a determination of the role of 110X women officers within the Naval establishment. If that role emphasizes attaining expertise in a particular functional area or sub-specialty vice attaining general managerial skills in a variety of functional areas, then is leadership experience as necessary to the 110X woman officer as it is to the warfare specialist? Additionally, is assignment to a position involving significant policy decision-making responsibilities comparable to a command tour? If the latter is true, is experience in a Division Officer or Department Head billet necessary for the woman 110X officer to successfully perform in the policy decision-making position? The implications of these questions are not meant to suggest that a lack of familiarity with fleet problems is not necessary to the policy planner, rather that this familiarity can be attained through other means, such as serving in operational commands, reading, and listening to fleet COs, Temporary Additional Duty, and so on.

For the current woman officer, the definition of her role has a great impact on her potential for promotion. If promotion boards are given concrete guidance to select only women who have served in the appropriate managerial positions over women who have emphasized expertise development, then well-qualified women may fail of selection. Additionally, there appears to be a great danger in emphasizing leadership qualifications if one considers the number of women currently

serving in non-leadership billets, perhaps requiring a policy decision that a disproportionate number of the shore establishment leadership positions be assigned to the 110X woman officer in order to permit her a viable career path. Additionally, it is important that any leadership experience that an 110X woman officer has attained be documented in her fitness reports, as the promotion board has no means of determining whether, in fact, a woman officer has served in department head or division officer billet, if the board must rely on an examination of the Officer Data Card.

Regarding the status of women twenty years hence, given the current structure of the 1000 coded billets, the situation shows slight improvement. In this regard, one major shortcoming of this study may be the fact that continuation and availability rates were not altered. Continued increased promotion rates for women Lieutenant Commanders, Commanders, and Captains will definitely affect the projections of this study. Likewise, outside environmental factors, such as increased pressure on industry to employ additional women, may appreciably alter the employment options for the 110X woman officer and therefore result in a change in continuation rates. Another weakness in the model may be the assumption that the increases in requirements would follow the general pattern of the current billet structure, i.e., that increases in billets would apply in the same proportions to the various leadership categories as currently evidenced by

the requirements structure. If increases in requirements, filled by women, emphasize leadership billets, then the findings of this study may be misleading.

Improvement over the twenty year period occurs not only in the number of women relative to the number of 1000 designated requirements but also in terms of the numbers of women filling leadership qualifying positions. The improvement over the current status of women appears to be a result of increased accessions of women officers in the 1970's and projected through the 80's and 90's vis-à-vis accession rates for the 50's and 60's, and a result of increasing the numbers and types of requirements which women may fill.

However, the twenty year projections contain a common thread throughout, the lack of leadership qualifying billets. As indicated in the preceeding discussion on the current status of women, the problems in twenty years appear to be similar to those experienced now, that is, functional areas with no command opportunity, a lack of division officer billets for junior women officers, and inversions between the numbers of women in CO and XO billets and Department Head and Division Officer requirements. Therefore, the conclusions of the section on the current employment of women are applicable to future employment of women: the requirement for flexibility in assignment patterns, the necessity to define the 110X women officers role in the Navy, the necessity to identify or annotate a woman officers' leadership/managerial qualifications and the necessity to design carefully promotion board guidance.

Particular mention must be made regarding future promotion of women officers. Given the anticipated passage of the Defense Officer Personnel Management Act (DOPMA) by Congress, whereby 110X women officers will compete with their male counterparts for promotion instead of only among themselves, special guidance will be required for promotion boards in order to give the boards an understanding of the career patterns available to 110X women officers. If promotion boards expect a woman officer to have served in a division officer, department head or executive officer position at the same point that her male counterpart has, then the women officers shall probably suffer in promotion boards. On the other hand, appropriate guidance and assignment policies could make up for the lack of leadership billets particularly in the junior grades.

C. RECOMMENDATIONS

In this section the recommendations of the thesis shall be presented. Recommendations regarding the study shall parallel the conclusions of the study and address the requirements base, the current employment of women and the future use of 110X women officers.

Regarding the requirements base, it is recommended that any future studies of 110X women officers employ the same method as used in this study, i.e., a review of the 1000 designated billets relative to the whole officer structure of an activity. However, prior to conducting another review

of the 1000 designated requirements base, it is recommended that the coding of the 110X women and 1000 designated billets with the Department or Division AQDs be accomplished. Provisions should be made to permit Commanding Officers' views on which billets should be coded, and to allow for coding of women who have previously served in department or division officer billets coded with either the 1000 designator or another designator category. This could be accomplished either through a review of the women officers' fitness reports or through a notice requesting input from the women officers.

It is further recommended that a comprehensive review of the shore establishment be undertaken. This review should emphasize standardization of grade, NOBC, and designator assignment in addition to consideration of such issues as downgrading requirements, military and/or civilian substitution, and elimination of excess requirements. As byproducts of this review, it is recommended that criteria be established that can be used in assessing the appropriate grade for a billet, appropriate designator, and the optimal mix of civilians and military. Additionally, it will be necessary to consider vertical functional integration of shore activities so that redundancy of functions can be eliminated. Ideally, the results of such a review would enable planners to develop more concise definitions of CO, XO, Department Head and Division Officer and their equivalent positions so that the positions at all command echelons could be equated.

Finally, it is recommended that an integrated study of the warfare specialists and the 110X women officers relative to the 1000 designated billets be accomplished, so that shortfalls in personnel and quality could be identified. Additionally, this study would result in a more complete picture of leadership availability for the 110X women officers.

Regarding the current employment of women officers, it is recommended that various assignment policy options be considered that might increase the availability of the limited numbers of leadership billets available to 110X women-officers. Such policies could include rotation among different types of billets and activities within the first four years of service as well as shortened tours and assignment to other than 1000 designated billets. Care should probably be taken to avoid sending women to isolated locations having only one or two 1000 designated billets without leadership characteristics unless the Commanding Officer of the activity is aware of the necessity for the woman to develop managerial skills and is willing to assign her to a division officer billet regardless of the designation of the billet. For those women serving in a functional area that provides leadership opportunity, personnel planners might consider rotating the women not only among the various leadership billets but also among activities associated with the various warfare specialities and command echelons, e.g., personnel officer in an aviation squadron, to military personnel officer in a Naval Station, to a community planner in OP-01 to force personnel at Airlant.

It is further recommended that consideration be given to establishing more than one career pattern so that an officer could become an expert in a particular functional area, fail to serve in a leadership billet and still be promotable. Variations on this latter pattern might include serving in a Division Officer position but not in a Department Head position in order to qualify for XO or vice versa. Likewise, it is recommended that considerations be given to allowing the 110X women officers to serve in a disproportionate number of leadership-qualifying 1000 designated shore establishment billets. A special policy may be required for the assignment of the woman Lieutenant who has not held a division officer job and is competing for a Department Head position against a male officer, but who is otherwise qualified.

Regarding the identification of leadership experience of women officers, it is recommended that an immediate review of the 110X women officers' fitness reports be undertaken, and that the qualified women be coded with the appropriate Department Head or Division Officer Additional Qualification Designation Code. It is further recommended that all women 110X officers be informed of their status and be requested to verify the leadership experience code. Furthermore, provisions should be established for the future coding of women officers, particularly those who have not served in a 1000 designated billet.

Finally, <u>it is recommended that career patterns do not become the standard by which women are considered for promotion. Promotion should be on the basis of performance and the criteria of the best-fitted officer</u>. Until such time that the 110X women officers have equal opportunity for serving in managerial positions at the various grades as their male counterparts, requirements for serving in a division or department head position would appear to be premature.

D. RESEARCH

In conducting a project of this magnitude, certain areas were identified as requiring further examination:

1. Job or task analysis in order to develop a means of identifying division and department head or equivalent experience, and in order to develop a means of equating positions at various activities and command echelons with one another. This job task analysis would ideally enable the researcher to equate, for example, a Division Officer position at an Air Station with a Branch Officer, Section Head or Division Officer at CINCLANTFLT.
2. In connection with the leadership experience issue, investigation might also be conducted into reduction of the number of billets coded as providing "no leadership." This would probably necessitate an analysis of the functions of a Department Head or

Division Officer, along with an examination of the requisite skills and aptitudes necessary for satisfactory performance of the function. Research into whether the skills and aptitudes for these positions could be gained without experience in the billet, i.e., whether such experience could also be gained through LMET (leadership, management, education, and training) courses, be self-taught, or be naturally gained through advancement, would also appear appropriate.

3. Another area of interest would be a study of the 1000 designated requirements structure relative to the warfare specialty-associated community structures. Although, by definition, the only billets 110X women officers can occupy are those coded with 1000 designator, in practice women are assigned to other than 1000 billets, on an exception basis. In order to form a better picture of the requirements aspects investigated in this study, all the URL shore billets and URL officers who fill these billets must be considered. Research in this area could yield significant information concerning women officer assignemtn patterns to the various warfare communities and perhaps result in future recommendations to convert these billets to the 1000 designator code, if the forecasted shortfalls of warfare specialty officers occurs.

4. Regarding the model employed, further examination relative to increases in number of 1000 designated billets held by women and conversion of the 1300 and 1050 coded billets, in terms of the leadership positions available, might focus on which billets might be converted to the 1000 designator and the resultant impact on the leadership/management billet structure.

5. Finally, an examination of training requirement associated with the individual functional areas (e.g., Communications) and the potential cross-functional area utilization of 110X women officers is a fruitful field for exploration. In this regard, consideration should be given to the impact of factors such as training costs, training time, career pattern development, and leadership experience for the woman officer and for the Navy.

E. SUMMARY

This study has attempted to examine systematically the most pressing issues regarding 110X women officers career development. By thoroughly reviewing the 1000 designated requirements base, many problems which were thought to exist have appeared to be real. The predominate problem for the 110X woman officer assigned to the shore establishment appears to be the lack of requirements that provide the woman officer with managerial skills. If the projections of

study are accurate, measures must be taken to allow either greater flexibility in the assignment process, to redefine the requirements base, or reassess the role of the 110X women officer. Finally, additional research into this subject combined with policy changes could provide a more meaningful career pattern for the 110X woman officer.

APPENDIX A

EXAMPLES OF BILLET ASSIGNEMTNS TO FUNCTIONAL AREAS AND MANAGEMENT EXPERIENCE CATEGORIES

Functional Area	Acitvity	Billet	Management/Experience
Supply and Fiscal	DC TRACEN	Budget Director	Dept
" " "	COMNAVAIRLANT	TEMADD Programs	Div Equivalent
" " "	NB GUANTANAMO	Base Pasngr & Trans	Staff
Services	DEPT NAVSTF OF PAO	DIV DIR COM REL	Division
"	NAV HIST CEN	ASST SHIPS HIST DEPT HD	Dept
"	NS Panama	PAO/PROTOCOL	Staff
Management/ Administration	SUBBASE PEARL	ADMIN Dept	Dept Head
"	PHOTO CEN NS WASH	MGT INFO CENTER	Div Equivalent
"	NSA BROOKLYN	CO	CO
Personnel Management	AFEES MANCHESTER	CO	CO
"	VF 121	DISCHG ADMIN/LEGAL	NONE
"	NATIONAL HQ BOY SCOUTS OF AMERICA	YOUTH PROGRAM	Div
General Personnel	NAVMACLANT	CO	CO
"	COMNAVAIRPAC	Manpower Plan	NONE
"	NAVCRUITCOM	Director PRCH & Recruit	Dept
Human Resources Management	CAA CT NS SUBIC	CAA CTR DIRECTOR	Dept
"	NAVMAT	Race Rel Educ	NONE
"	NAS MERIDIAN	Pers Affairs	Staff

Training	COMNAVTELCOM	HD Career Development	Branch
"	Naval Academy	Dept HD & Deputy Director A	Dept
"	CNETS	Inst Prog Design	NONE
Sciences	DEF Mapping Agency	XO	XO
"	COMOPTEVFOR	EXEC AIDE	Staff
"	NOCEANO BAY ST LOUIS	Asst Manager Ocean Survey	Div Equivalent
Engineering	MAGAZINE SUBIC	XO	XO
"	LOGPAC	WEP LOGISTICS	NONE
"	PHIB CB2	COMPANY OFF	Division
Staff and Fleet Command	NCRUIT AREA 7	Chief Stf Officer	XO Equivalent
"	NB PEARL	Staff OPS and PLANS	Div Officer
"	NATO MIL COMMITTEE	Asst to EXEC	Staff
Shore Operations	NAVFAC COOS HD	OPS Watch Off	Branch HD
"	NRC CHARLESTON	CO	CO
"	NSUB SUPB KINGS BAY	OINC	CO Equivalent
Communications	NAS LEMOORE	COMM	Dept HD
"	NCAMS MED DET SIG	COMM DET OIC	CO Equivalent
"	COMNAVTELCOM	IG	NONE
Intelligence & Cryptology	DIA	Course Coordinator	NONE
"	NFOIO FT MEADE	Senior Watch Analyst	Div Equivalent
"	FICEURLANT	XO	XO
Automated Data Processing	DPSCPAC PEARL	WWMCCS Sect Off	Branch Hd
"	FLT COMBDSSA DNECR	Sys Maint Off	Div Officer
"	NARDAC WASH DC	XO	XO

Naval Operations, General	CNTECHTRA	Aide	Staff
"	SBUA	Boat Division	Div Officer
"	NAVY TACDOC ACT	OINC	CO Equivalent

Appendix B-1

FUNCTIONAL AREA [1,2,3]
TOTAL

	*CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	143(106)	37(16)	125(70)	92(58)	17(7)	80(35)	62(29)	556(321)
05	87(64)	130(89)	116(67)	132(83)	73(46)	97(42)	267(139)	902(530)
04	80(20)	76(52)	282(85)	154(73)	69(38)	106(39)	529(293)	1296(600)
03	48(7)	27(3)	174(22)	280(40)	76(19)	105(19)	755(270)	1465(380)
02	4	1	56(19)	112(8)	76(3)	51(10)	392(76)	692(116)
01		1	6(1)	40(1)	38	7(1)	87(4)	179(7)
TOTALS	362(197)	272(160)	759(264)	810(263)	349(113)	446(146)	2092(811)	5090(1954)

*Leadership **Rank

1. Numbers in parentheses indicate subspecialty requirements, included in total requirements.
2. CO = CO + CO equivalent; XO = XO + XO equivalent; DEPT HD = DEPT + DEPT equivalent; DIV OFF = DIV + DIV equivalent.
3. Figures exclude student and transients, patients, separations, and detainees.

Appendix B-2

FUNCTIONAL AREA
SUPPLY AND FISCAL [1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06			12(9)	3(3)	1	2(1)	4(3)	22(16)
05			12(11)	3(2)		7(7)	17(11)	39(31)
04			9(6)	5(4)	1(1)	4(2)	12(7)	31(20)
03			2	6			3(1)	11(1)
02			3	13(1)			5(1)	21(2)
01				4				4
TOTALS			38(26)	34(10)	2(1)	13(10)	41(23)	128(70)

*Leadership **Rank

[1] Numbers in parenthesis indicate subspecialty requirements, included in total requirements

[2] CO = CO + Equivalent positions, XO = XO + Equivalent, DEPT HD = DEPT HD + Equivalent, DIV OFF = DIV OFF + Division Equivalent

Appendix B-3

FUNCTIONAL AREA
SERVICES[1,2]

**	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	2[3]	1[4]	1	3			2	9
05		1(1)[4]	4	7(2)	2	1	1	16(3)
04	1[5]	3[6]	21(3)	13(4)	3	3	19(1)	63(8)
03		1[4]	12	25(2)	4(2)	23(10)	19(9)	84(23)
02			3	3		11(4)	8(3)	25(7)
01			2	3		3	5	13
TOTALS	3	6(1)	43(3)	54(8)	9(2)	41(14)	54(13)	210(41)

*Leadership **Rank

[1]Numbers in parenthesis indicate subspecialty requirements, included in total requirements

[2]CO - CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT HD + DEPT HD Equivalent, DIVISION = DIVISION + DIVISION Equivalent

[3]Includes 2 CO Equivalent Requirements

[4]Includes 1 XO Equivalent Requirement

[5]Includes 1 CO Equivalent Requirement

[6]Includes 3 XO Equivalent Requirements

Appendix B-4

FUNCTIONAL AREA
MANAGEMENT ADMINISTRATION[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	14(1)[3]		8(3)	2(1)		4(2)	1	29(7)
05	5[4]	16(1)[5]	9(2)	9(3)	3(2)	5(2)	5(2)	52(12)
04	6[6]	4[7]	95(7)	15(5)		6(2)	21(9)	147(23)
03	4[6]	2[7]	55	44(2)	4	15(1)	22(6)	146(9)
02		1[7]	8	12	3	25	5	54
01			2	11	1		2	16
TOTALS	29(1)	23(1)	177(12)	93(11)	11(2)	55(7)	56(17)	444(51)

*Leadership **Rank

[1] Numbers in parentheses indicate subspecialty requirements, included in total requirements

[2] CO = CO+CO Equivalent, XO = XO+XO Equivalent, DEPT HD = DEPT HD+DEPT HD Equivalent, DIV = DIV+DIV Equivalent

[3] Includes 1 CO Equivalent Requirement

[4] Includes 3 CO Equivalent Requirements

[5] Includes 2 XO Equivalent Requirements

[6] Includes 4 CO Equivalent Requirements

[7] Includes 1 XO Equivalent Requirement

Appendix B-5

FUNCTIONAL AREA
PERSONNEL MANAGEMENT[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	16(14)	1[3]	2(1)	9(5)		1	3	32(20)
05	35(33)	2(2)	3(1)	3(2)	13(10)	2	9(3)	67(51)
04	19[4]	42(40)	23	7(2)	11(3)	6(1)	17(5)	125(51)
03	13[5]	1[3]	31	32(2)	14	2	44(12)	137(14)
02	3[6]		3	4(1)	14	1	11(2)	36(3)
01					1	1	2	4
TOTALS	86(47)	46(42)	62(2)	55(12)	53(13)	13(1)	86(22)	401(139)

*Leadership **Rank

[1] Numbers in parentheses indicate subspecialty requirements, included in total requirements

[2] CO = CO+CO Equivalent, XO = XO+XO Equivalent, DEPT = DPET+DEPT Equivalent, DIVISION = DIV+DIV Equivalent

[3] Includes 1 XO Equivalent Requirement

[4] Includes 7 CO Equivalent Requirements

[5] Includes 9 CO Equivalent Requirements

[6] Includes 3 CO Equivalent Requirements

Appendix B-6

FUNCTIONAL AREA
GENERAL PERSONNEL[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	4(2)[3]	1(1)[4]	14(10)	17(13)		3(1)	2	41(27)
05	1(1)[5]	3[4]	11(7)	20(17)	17(13)	9(5)	13(7)	74(50)
04	2[3]	1[4]	24(7)	28(10)	15(11)	6(2)	53(30)	129(60)
03			12(4)	41(8)	6(1)	1	58(24)	118(37)
02				19	1	1	8(2)	29(2)
01				3			3	6
TOTALS	7(3)	5(1)	61(28)	128(48)	39(25)	20(8)	137(63)	397(176)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty requirements, included in total requirements

[2]CO = CO+CO Equivalent, XO = XO+XO Equivalent, DEPT HD = DEPT HD+DEPT Equivalent, DIV = DIV Officer+DIV Equivalent

[3]Includes 2 CO Equivalent Requirements

[4]Includes 1 XO Equivalent Requirement

[5]Includes 1 CO Equivalent Requirement

Appendix B-7

FUNCTIONAL AREA
HUMAN RESOURCES MANAGEMENT[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	12(10)[3]	1(1)		1(1)				14(12)
05	10(8)[4]	14(13)[5]	4(3)	2(2)	9(9)	1(1)	9(5)	49(41)
04	4(1)[6]	1(1)[7]	8(4)	4(2)	15(15)	15(12)	26(24)	73(59)
03	6(2)[8]		8(2)	9(3)	8(8)	9(5)	71(55)	111(75)
02			28(18)	12(5)	2(2)	7(5)	34(30)	83(60)
01			1(1)	5(1)		2(1)	3(1)	11(4)
TOTALS	32(21)	16(15)	49(28)	33(14)	34(34)	34(24)	143(115)	341(251)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty requirements, included in total requirements
[2]CO = CO+CO Equivalent, XO = XO+XO Equivalent, DEPT = DEPT HD+DEPT HD Equivalent, DIV = DIV+DIV OFF Equivalent
[3]Includes 1 CO Equivalent Requirement
[4]Includes 10 CO Equivalent Requirements
[5]Includes 4 XO Equivalent Requirements
[6]Includes 4 CO Equivalent Requirements
[7]Includes 1 XO Equivalent Requirement
[8]Includes 6 CO Equivalent Requirements

Appendix B-8

FUNCTIONAL REQUIREMENTS[1,2,3]
TRAINING

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	52(51)[4]	2(2)[5]	16(10)	7(7)		2(1)	14(13)	93(84)
05	6(6)[6]	50(48)	23(16)	10(8)	1	4(3)	36(29)	130(110)
04	1[6]	4(4)	25(17)	24(13)	2(2)	6(4)	83(53)	145(93)
03	4(1)[7]	1	9(4)	39(8)		4	200(36)	257(49)
02			2	10	5(1)	1	85(3)	103(4)
01				1	4		56	61
TOTALS	63(58)	57(54)	75(47)	91(36)	12(3)	17(8)	474(134)	789(340)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty requirements, included in total requirements

[2]CO = CO+CO Equivalent, XO = XO+XO Equivalent, DEPT = DEPT HD=DEPT Equivalent, DIVISION = DIV+DIV Equivalent

[3]Student requirements are not included

[4]Includes 2 CO Equivalent Requirements

[5]Includes 2 XO Equivalent Requirements

[6]Includes 1 CO Equivalent Requirement

[7]Includes 3 CO Equivalent Requirements

Appendix B-9

FUNCTIONAL AREA
SCIENCES[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	3(1)[3]		6(4)	3(2)		1(1)	1(1)	14(9)
05	4(2)[3]	3(2)[4]	2	12(11)		2(1)	12(4)	35(20)
04	4(4)[5]		1(1)	7(6)		2(1)	39(19)	53(31)
03			1	2(1)			22(13)	25(14)
02						1	3	4
01								
TOTALS	11(7)	3(2)	10(5)	24(20)		6(3)	77(37)	131(74)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty requirements, included in total requirements

[2]CO = CO+CO Equivalent, XO = XO+XO Equivalent, DEPT HD = DEPT HD+DEPT HD Equivalent, DIVISION = DIVISION + DIVISION Equivalent

[3]Includes 3 CO Equivalent positions

[4]Includes 2 XO Equivalent positions

[5]Includes 4 CO Equivalent positions

Appendix B-10

FUNCTIONAL AREA
ENGINEERING[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	5(4)[3]		3(3)	2(2)		1	3(1)	14(10)
05	4(1)[4]	4(2)	2	4(4)	3(1)	3(1)	12(6)	32(15)
04	2[4]	4(1)[5]	3(1)	4(2)		3(1)	21(9)	37(14)
03	2[4]			16(1)	1	1	60(6)	80(7)
02			1	1			102(3)	104(3)
01				1	2		1	4
TOTALS	13(5)	8(3)	9(4)	28(9)	6(1)	8(2)	199(25)	271(49)

*Leadership **Rank

[1]Numbers in parenthesis indicate subspecialty requirements, included in total requirements

[2]CO = CO+CO Equivalent, XO = XO+XO Equivalent, DEPT HD = DEPT+DEPT Equivalent, DIVISION = DIVISION+ DIVISION Equivalent

[3]Includes 3 CO Equivalent Requirements

[4]Includes 2 CO Equivalent Requirements

[5]Includes 1 XO Equivalent Requirement

Appendix B-11

FUNCTIONAL AREA
STAFF AND FLEET COMMAND[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	2[3]	21(3)[4]	29(8)	20(9)	13(5)	9(2)	14(4)	108(31)
05	3[3]	11(7)[5]	13(2)	18(5)	11(2)	18(1)	82(31)	156(48)
04			8(1)	10(1)	10(1)	31(4)	73(38)	132(45)
03	2[3]		5	6	1	12	34(11)	60(11)
02						2(1)	8(1)	10(2)
01						1	1	2
TOTALS	7	32(10)	55(11)	54(15)	35(8)	73(8)	212(85)	468(137)

*Leadership **Rank

[1] Numbers in parentheses indicate subspecialty requirements, included in total requirements

[2] CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT HD + DEPT HD Equivalent, DIV = DIV + DIV OFF Equivalent

[3] Includes 2 CO Equivalent Requirements

[4] Includes 21 XO Equivalent Requirements

[5] Includes 10 XO Equivalent Requirements

Appendix B-12

FUNCTIONAL REQUIREMENTS
SHORE OPERATIONS[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	5[3]	1(1)[4]	1					7(1)
05	4(2)[5]	8	6(2)	6(1)	2(2)	2(2)	1	29(9)
04	23(1)[6]	4	15	5	1(1)	1(1)	8(3)	57(5)
03	5[7]	18(2)[4]	25(5)	17	6	1	24	96(7)
02			2	9	38		34(1)	83(1)
01				7	26			33
TOTALS	37(3)	31(3)	49(7)	44(1)	73(2)	4(3)	67(4)	205(23)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty requirements included in total requirements

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT = DEPT HD + DEPT Equivalent, DIV = DIVISION + DIV Equivalent

[3]Includes 2 CO Equivalent Requirements

[4]Includes 1 XO Equivalent Requirement

[5]Includes 2 CO Equivalent Requirement

[6]Includes 4 CO Equivalent Requirements

[7]Includes 3 CO Equivalent Requirements

Appendix B-13

FUNCTIONAL AREA
COMMUNICATIONS[1,2]

**	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	12(12)	3(3)[3]	7(6)	5(4)		1(1)	2(2)	30(28)
05	10(8)[4]	8(8)	10(9)	10(9)	5(3)	2(2)	18(11)	63(50)
04	75(14)[5]	8(6)[6]	30(25)	14(10)	5(2)	3(2)	36(22)	113(81)
03	7(4)[7]	3(1)[8]	10(4)	14(4)	13(1)	1(1)	27(10)	75(25)
02	1[9]		4(1)	22	12	1	28(1)	68(2)
01		1[6]	1	3	3		8	16
TOTALS	47(38)	23(18)	62(45)	68(27)	38(6)	8(6)	119(46)	365(186)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty requirements, included in total requirements

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT = DEPT + DEPT HD Equivalent, DIV = DIV + DIVISION Equivalent

[3]Includes 2 XO Equivalent Requirements

[4]Includes 3 CO Equivalent Requirements

[5]Includes 15 CO Equivalent Requirements

[6]Includes 1 XO Equivalent Requirement

[7]Includes 7 CO Equivalent Requirements

[8]Includes 3 XO Equivalent Requirements

[9]Includes 1 CO Equivalent Requirement

Appendix B-14

FUNCTIONAL AREA
INTELLIGENCE AND CRYPTOLOGY[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	6(1)	2(1)[3]	8(6)	5(3)		30(24)	6(3)	57(38)
05	1[4]	2(1)		6(5)	1(1)	13(8)	24(13)	47(28)
04		1	3(1)		1(1)	5(3)	27(15)	37(20)
03	1[4]			10(2)	8(1)	3(1)	51(10)	73(14)
02				1			12(2)	13(2)
01				1				1
TOTALS	8(1)	5(2)	11(7)	23(10)	10(3)	51(36)	120(43)	228(102)

*Leadership ** Rank

[1]Numbers in parentheses indicate subspecialty requirements, included in total requirements

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT HD + DEPT Equivalent, DIV = DIV OFF + Equivalent

[3]Includes 1 XO Equivalent Requirement

[4]Includes 1 CO Equivalent Requirement

Appendix B-15

FUNCTIONAL AREA
AUTOMATED DATA PROCESSING[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	9(9)[3]	1(1)	4(3)	2(2)		1	1	18(15)
05	3(3)[4]	6(4)[5]	17(14)	11(7)	2(2)	3(2)	13(11)	55(43)
04		1	17(12)	13(12)	3(2)	3(1)	80(54)	117(81)
03	1[3]		3(2)	6(6)	9(6)	3	101(74)	123(88)
02				2(1)	1		35(26)	38(27)
01							5(3)	5(3)
TOTALS	13(12)	8(5)	41(31)	34(28)	15(10)	10(3)	235(168)	356(257)

*Leadership **Rank

[1] Numbers in parentheses indicate subspecialty requirements, included in total requirements

[2] CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT HD + DEPT Equivalent, DIVISION = DIVISION + DIVISION Equivalent

[3] Includes 1 CO Equivalent Requirement

[4] Includes 3 CO Equivalent Requirements

[5] Includes 1 XO Equivalent Requirement

Appendix B-16

FUNCTIONAL AREA
NAVAL OPERATIONS, GENERAL[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	1(1)	3(3)[3]	14(7)	13(6)	3(2)	25(2)	9(2)	68(23)
05	1[4]	2[5]		11(5)	4(1)	25(7)	15(6)	58(19)
04	1[4]	3[5]		5(2)	2	12(3)	14(4)	37(9)
03	3[6]	1[5]	1(1)	13(1)	2	30(1)	19(3)	69(6)
02			2	4		1	14(1)	21(1)
01				1	1		1	3
TOTALS	6(1)	9(3)	17(8)	47(14)	12(3)	93(13)	72(16)	256(58)

*Leadership ** Rank

[1]Numbers in parentheses indicate subspecialty requirements, included in total requirements

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT = DEPT + DEPT Equivalent, DIVISION = DIVISION + DIVISION Equivalent

[3]Includes 3 XO Equivalent Requirements

[4]Includes 1 CO Equivalent Requirement

[5]Includes 1 XO Equivalent Requirement

[6]Includes 3 CO Equivalent Requirements

Appendix C-1

PERSONNEL[1,2]

TOTALS

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	2(2)		2(2)	4(4)			2(2)	10(10)
05	4(4)	9(9)	3(3)	3(3)	3(3)	1(1)	18(17)	41(40)
04	8(7)	8(8)	12(9)	9(8)	3(3)	4(4)	34(31)	78(70)
03	9(3)	2(1)	57(24)	65(31)	21(12)	30(15)	273(135)	457(221)
02	1	1	22(3)	26(2)	25(1)	12(2)	118(22)	205(30)
01		4	52(1)	69(3)	83(2)	26(1)	439(14)	673(21)
TOTALS	24(16)	24(18)	148(42)	176(51)	135(21)	73(23)	884(221)	1464(392)

*Leadership ** Rank

[1]Numbers in parenthesis indicate subspecialty qualified individuals included in total personnel

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HEAD = DEAP HD + DEPT HD Equivalent, DIVISION = DIVISION + DIVISION Equivalent

Appendix C-2

PERSONNEL
SUPPLY AND FISCAL[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06								
05							1(1)	1(1)
04								
03				2		1(1)	2(2)	5(3)
02				3			1(1)	4(1)
01				3(1)			4	7(1)
TOTALS				8(1)		1(1)	8(4)	17(6)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty qualified individuals, included in total personnel

[2]CO = CO + CO Equivalents, XO = XO + XO Equivalents, DEPT HD = DEPT HD + DEPT Equivalent, DIVISION = DIVISION + DIVISION Equivalent

Appendix C-3

PERSONNEL
SERVICES[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06			1(1)				1(1)	2(2)
05					1(1)			1(1)
04			1(1)			1(1)	3(3)	5(5)
03			1	3		3(1)	25(13)	32(14)
02			2(1)	1	1	2	4	10(1)
01		1[3]	3	1	1	15(1)	27	48(1)
TOTALS		1	8(3)	5	3(1)	21(3)	60(17)	98(24)

*Leadership ** Rank

[1]Numbers in parentheses include subspecialty qualified individuals, included in total personnel

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HEAD = DEPT + DEPT HEAD Equivalent, DIVISION = DIV + DIVISION Equivalent

[3]Includes 1 XO Equivalent individual

Appendix C-4

PERSONNEL MANAGEMENT/ADMINISTRATION[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06								
05		1(1)[3]	1(1)					2(2)
04	1(1)[4]	1(1)	4(2)	3(2)			3(2)	12(8)
03	1(1)[4]		23(10)	10(4)	1	12(6)	19(8)	66(29)
02			8(1)	4(1)	1	3	4(1)	20(3)
01			19(1)	14(1)	3	5	34	75(2)
TOTALS	2(2)	2(2)	55(15)	31(8)	5	20(6)	60(11)	174(43)

*Leadership **Rank

[1] Numbers in parentheses indicate subspecialty coded individuals, included in total personnel

[2] CO = CO + CO Equivalent personnel, XO = XO + XO Equivalents, DEPT HD = DEPT + DEPT Equivalents, DIVISION = DIV + DIV Equivalents

[3] Includes 1 XO Equivalent individual

[4] Includes 1 CO Equivalent individual

Appendix C-5

PERSONNEL
PERSONNEL MANAGEMENT[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06	2(2)							2(2)
05	1(1)	2(2)			1(1)			4(4)
04	3(3)[3]	5(5)	1(1)					9(9)
03	1(1)[3]		2	5(3)	7(4)	1(1)	26(7)	42(16)
02			1	1	1	1	2	6
01			1	4	2(1)		24	31(1)
TOTALS	7(7)	7(7)	5(1)	10(3)	11(6)	2(1)	52(7)	94(32)

*Leadership **Rank

[1] Numbers in parentheses indicate subspecialty coded individuals, included in total personnel

[2] CO = CO + CO Equivalent personnel, XO = XO + XO Equivalents, DEPT HD = DEPT + DEPT Equivalents, DIVISION = DIV + DIV Equivalent

[3] Includes 1 CO Equivalent individual

Appendix C-6

PERSONNEL
GENERAL PERSONNEL[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06				3(3)			1(1)	4(4)
05	1(1)			1(1)	1(1)		4(4)	7(7)
04			1(1)	2(2)	1(1)		8(8)	12(12)
03	2[3]		4(4)	16(8)	2(1)		36(19)	60(32)
02	1[4]			1(1)	2(1)	1	7(1)	12(3)
01			2	20	2	2	46	72
TOTALS	4(1)		7(5)	43(15)	8(4)	3	102(33)	167(58)

*Leadership   ** Rank

[1]Numbers in parentheses indicate subspecialty coded individuals included in total personnel

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT + DEPT Equivalent, DIVISION = DIVISION + DIVISION Equivalent

[3]Includes 2 CO Equivalent individuals

[4]Includes 1 CO Equivalent individual

Appendix C-7

PERSONNEL

HUMAN RESOURCES MANAGEMENT[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06								
05		1(1)					3(3)	4(4)
04	1[3]	1(1)[4]		1(1)	1(1)	1(1)	3(1)	8(5)
03			8(1)	6(4)	2(1)	6(2)	27(14)	49(22)
02			5	2			6(2)	13(2)
01			1	5	1	3	25	35
TOTALS	1	2(2)	14(1)	14(5)	4(2)	10(3)	64(20)	109(33)

*Leadership ** Rank

[1]Numbers in parentheses indicate subspecialty coded individulas included in total personnel

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT = DEPT HD + DEPT Equivalent, DIV = DIVISION + DIVISION Equivalent

[3]Includes 1 CO Equivalent individual

[4]Includes 1 XO Equivalent individual

Appendix C-8

PERSONNEL TRAINING[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06								
05	2(2)[3]	4(4)					1(1)	7(7)
04			3(2)	2(2)		1(1)	7(7)	13(12)
03			5(3)	11(5)	2(1)	1(1)	37(21)	56(31)
02			2(1)	1	1		26(10)	30(11)
01			12	4(1)	5		57(8)	78(9)
TOTALS	2(2)	4(4)	22(6)	18(8)	8(1)	2(2)	128(47)	184(70)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty qualified individuals included in total personnel

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT HD + DEPT Equivalent, DIVISION = DIVISION + DIV Equivalent

[3]Includes 1 CO Equivalent individual

Appendix C-9

PERSONNEL SCIENCES[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06								
05				1(1)				1(1)
04								
03			1		1	1(1)	8(4)	11(5)
02							2	2
01			1				8(1)	9(1)
TOTALS			2	1(1)	1	1(1)	18(5)	23(7)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty coded individuals, included in total personnel

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT HD + DEPT Equivalent, DIVISION = DIVISION + DIV Equivalent

Appendix C-10

PERSONNEL
ENGINEERING[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06				1(1)				1(1)
05							2(1)	2(1)
04							1(1)	1(1)
03			2(1)				2(1)	4(2)
02				1	2		3	5
01				2	1		16	19
TOTALS			2(1)	4(1)	3		24(3)	33(5)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty qualified individuals, included in total personnel

[2]CO = CO + CO Equivalents, XO = XO + XO Equivalents, DEPT HD = DEPT HD + DEPT HD Equivalents, DIVISION = DIVISION + DIVISION Equivalents

Appendix C-11

PERSONNEL
STAFF AND FLEET COMMAND[1,2]

**	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06								
05			2(2)				2(2)	4(4)
04				1(1)			1(1)	2(2)
03	1[3]		4			2(1)	8(1)	15(2)
02			1	1		2	6(1)	10(1)
01			2	2			16	20
TOTALS	1		9(2)	4(1)		4(1)	33(5)	51(9)

*Leadership **Rank

[1]Numbers in parentheses include subspecialty qualified individuals, included in total personnel

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT + DEPT Equivalent, DIV = DIVISION + DIV Equivalent

[3]Includes 1 CO Equivalent individual

Appendix C-12

PERSONNEL
SHORE OPERATIONS[1,2]

**Rank	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06								
05								
04							1(1)	1(1)
03	1[3]	2(1)	5(4)	4(1)			11(4)	23(10)
02		1	1	4	13		12	31
01			2	4	49		51(1)	106(1)
TOTALS	1	3(1)	8(4)	12(1)	62		75(6)	161(12)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty qualified individuals, included in total personnel

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT HD + DEPT Equivalent, DIVISION = DIV + DIV Equivalent

[3]Includes 1 CO Equivalent individual

Appendix C-13

PERSONNEL COMMUNICATIONS[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06								
05		1(1)						1(1)
04	3(3)[3]	1(1)	1(1)				2(2)	7(7)
03	3(1)[3]		1(1)	3(1)	1	1(1)	17(9)	26(13)
02			2	5	3	1(1)	9(1)	20(2)
01		3[4]	5	7	17(1)		34	66(1)
TOTALS	6(4)	5(2)	9(2)	15(1)	21(1)	2(2)	62(12)	120(24)

*Leadership **Rank

[1] Numbers in parentheses indicate subspecialty qualified individuals, included in total personnel

[2] CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT = DEPT HD + DEPT Equivalent, DIVISION = DIVISION + DIV Equivalent

[3] Includes 3 CO Equivalent individuals

[4] Includes 3 XO Equivalent individuals

Appendix C-14

PERSONNEL
INTELLIGENCE AND CRYPTOLOGY[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06								
05							2(2)	2(2)
04					1(1)	1(1)	4(4)	6(6)
03			1	1(1)	5(5)		17(8)	24(14)
02						2(1)	16(3)	18(4)
01			2		1		29	32
TOTALS			3	1(1)	7(6)	3(2)	68(17)	82(26)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty qualified individuals, included in total personnel

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT HD + DEPT Equivalent, DIVISION = DIVISION + DIVISION Equivalent

Appendix C-15

PERSONNEL
AUTOMATED DATA PROCESSING[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06								
05							3(3)	3(3)
04			1(1)				1(1)	2(2)
03				3(3)			36(24)	39(27)
02				2	1		18(1)	21(1)
01			1	1	1		57(4)	60(4)
TOTALS			2(1)	6(3)	2		115(33)	125(37)

*Leadership **Rank

[1]Numbers in parentheses indicate subspecialty qualified individuals, included in total personnel

[2]CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT HD + DEPT Equivalent, DIV = DIV + DIV Equivalent

Appendix C-16

PERSONNEL
NAVAL OPERATIONS, GENERAL[1,2]

	* CO	XO	DEPT. HEAD	DIVISION OFFICER	BRANCH HEAD	STAFF	NO LEADERSHIP	TOTALS
**06			1(1)					1(1)
05				1(1)		1(1)		2(2)
04								
03				1(1)		2	2	5(1)
02							2(1)	2(1)
01			1	2		1	11	15
TOTALS			2(1)	4(2)		4(1)	15(1)	25(5)

*Leadership **Rank

[1] Numbers in parentheses indicate subspecialty qualified individuals, included in total personnel

[2] CO = CO + CO Equivalent, XO = XO + XO Equivalent, DEPT HD = DEPT HD + DEPT HD Equivalent, DIVISION = DIVISION + DIVISION Equivalent

Appendix D-1

ADJUSTED FUNCTIONAL AREA
TOTAL

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	24	2	14	10	1	7	5	63
05	14	16	17	19	10	8	28	112
04	11	11	48	24	13	12	71	190
03	7	2	30	56	12	13	110	220
02	4	1	56	112	76	51	392	692
01		1	6	40	38	7	87	179
TOTALS	60	33	171	251	150	98	693	1456

*Leadership **Rank

Appendix D-2

ADJUSTED FUNCTIONAL AREA
SUPPLY AND FISCAL

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06			1					1
05			1				1	2
04			1				1	2
03				1				1
02			3	13			5	21
01				4				4
TOTALS			6	18			7	31

*Leadership **Rank

Appendix D-3

ADJUSTED FUNCTIONAL AREA
SERVICES

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	1			1				2
05			1	2				3
04		1	5	3	1	1	4	15
03			3	6	1	5	5	20
02			3	3		11	8	25
01			2	3		3	5	13
TOTALS	1	1	14	18	2	20	22	78

*Leadership **Rank

Appendix D-4

ADJUSTED FUNCTIONAL AREA
MANAGEMENT ADMINISTRATION

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	3		2			1		6
05	1	3	2	2	1	1	1	11
04	1	1	20	3		1	5	31
03	1		12	9	1	3	5	31
02		1	8	12	3	25	5	54
01			2	11	1		2	16
TOTALS	6	5	46	37	6	31	18	149

*Leadership ** Rank

Appendix D-5

ADJUSTED FUNCTIONAL AREA
PERSONNEL MANAGEMENT

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	3			1			1	5
05	6		1	1	2		1	11
04	3	7	3	1	2	1	3	20
03	2		5	5	2		7	21
02	3		3	4	14	1	11	36
01					1	1	2	4
TOTALS	17	7	12	12	21	3	25	97

*Leadership ** Rank

Appendix D-6

ADJUSTED FUNCTIONAL AREA
GENERAL PERSONNEL

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	1		3	4		1		9
05		1	2	5	4	2	3	17
04	1		6	6	4	1	12	30
03			3	10	1		13	27
02				19	1	1	8	29
01				3			3	6
TOTALS	2	1	14	47	10	5	39	118

*Leadership **Rank

Appendix D-7

ADJUSTED FUNCTIONAL AREA
HUMAN RESOURCES MANAGEMENT

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	3	1						4
05	3	3	1	1	2		2	12
04	1		2	1	4	4	6	18
03	1		2	2	2	2	18	27
02			28	12	2	7	34	83
01			1	5		2	3	11
TOTALS	8	4	34	21	10	15	63	155

*Leadership   ** Rank

Appendix D-8

ADJUSTED FUNCTIONAL AREA TRAINING

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	6		2	1			2	11
05	1	6	3	1		1	4	16
04		1	3	3		1	10	18
03	1		1	5			24	31
02			2	10	5	1	85	103
01				1	4		56	61
TOTALS	8	7	11	21	9	3	181	240

*Leadership **Rank

Appendix D-9

ADJUSTED FUNCTIONAL AREA
SCIENCES

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06			1					1
05	1			1			1	3
04				1			4	5
03							3	3
02						1	3	4
01								
TOTALS	1		1	2		1	11	16

*Leadership **Rank

Appendix D-10

ADJUSTED FUNCTIONAL AREA
ENGINEERING

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	1							1
05							1	1
04			1				1	2
03				1			3	4
02			1	1			102	104
01				1	2		1	4
TOTALS	1		2	3	2		108	116

*Leadership ** Rank

Appendix D-11

ADJUSTED FUNCTIONAL AREA
STAFF AND FLEET COMMAND

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06		1	1	1	1		1	5
05			1	1		1	4	7
04				1	1	1	3	6
03						1	2	3
02						2	8	10
01						1	1	2
TOTALS		1	2	3	2	6	19	33

*Leadership **Rank

Appendix D-12

ADJUSTED FUNCTIONAL AREA
SHORE OPERATIONS

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	1							1
05	1	1	1	1				4
04	3		2	1			1	7
03	1	2	3	2	1		3	12
02			2	9	38		34	83
01				7	26			33
TOTALS	6	3	8	20	65		38	140

*Leadership ** Rank

Appendix D-13

ADJUSTED FUNCTIONAL AREA
COMMUNICATIONS

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	2		1	1				4
05	1	1	1	1	1		3	8
04	2	1	1	2	1	1	5	13
03	1		1	2	2		3	9
02	1		4	22	12	1	28	68
01		1	1	3	3		8	16
TOTALS	7	3	9	31	19	2	47	118

*Leadership **Rank

Appendix D-14

ADJUSTED FUNCTIONAL AREA
INTELLIGENCE/CRYPTOLOGY

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	1		1	1		4	1	8
05				1		2	4	7
04			1			1	4	6
03				1	1	1	8	11
02				1			12	13
01				1				1
TOTALS	1		2	5	1	8	29	46

*Leadership **Rank

Appendix D-15

ADJUSTED FUNCTIONAL AREA
AUTOMATED DATA PROCESSING

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06	2		1					3
05		1	3	2			2	8
04			3	2			11	16
03				1	1		15	17
02				2	1		35	38
01							5	5
TOTALS	2	1	7	7	2		68	87

*Leadership ** Rank

Appendix D-16

ADJUSTED FUNCTIONAL AREA
NAVAL OPERATIONS, GENERAL

	* CO	XO	DEPT	DIVISION	BRANCH	STAFF	NO LEADERSHIP	TOTAL
**06			1			1		2
05						1	1	2
04							1	1
03				1		1	1	3
02			2	4		1	14	21
01				1	1		1	3
TOTALS			3	6	1	4	18	32

*Leadership **Rank.

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Thesis 183851
M3827 Matthews
c.1 An examination of unrestricted line women officers' career patterns and related issues.